

ST. BARTHOLOMEW'S HOSPITAL JOURNAL



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SEPTEMBER 1959

EDITORIAL

This academic year sees an innovation in the admission for the first time of dental students from the Royal Dental Hospital. They have until now been housed under three widely separated roofs — those of University College, the Royal Free and King's College—and for various reasons the two latter are unable to provide for them any more. Twenty are therefore to start at Bart's this year, increasing to sixty-five in 1961. That there is space enough for another sixty-five students to use the premises at Charterhouse can hardly be denied, although there will be some regrets that the spaciousness and "elbow room" enjoyed at present will be considerably reduced. As regards their course, they will share the whole of the 1st M.B. course and some of the physiology lectures; their anatomy course will be completely separate and is to be held in the old Zoology department.

The introduction of dental students is a break in a very long tradition, and there are some who regard a break with tradition with disfavour, and while it may be true that certain old fashioned customs die hard, this need not be the case in the present matter. On the contrary, the introduction of an outside influence in students pursuing a similar but not identical course should be for the good. Differences of outlook and curriculum lend themselves well to stimulating discussion ultimately to the benefit of both sides.

Moreover, an ideal opportunity is provided at an early stage for each to understand the working and scope of a profession with which there must always be the closest co-operation. In some schools, however, there is a deep line of division between medicals and dentals: it is hoped that from the very beginning this will never be the case at Bart's.

Some of the arrangements which have been made will unfortunately not always help this aim of unity at Charterhouse. These students will pay a subscription of £3 to the Students' Union which will give them temporary membership and use of the facilities at Charterhouse Square only. They will not be allowed to use the sports ground at Chislehurst because their own authorities wish them to use their own grounds, and while this wish can be respected and understood as a means of salvaging some integration of the rather scattered dental students, it will not help integration at Bart's. There may be some justifiable resentment that students who can use the excellent facilities which we have to offer here are not permitted to offer their talents for the benefit of this community. While this may be unfortunate, there should be no reason to allow it to become a bone of contention, if we only consider that these dental students are less fortunate than ourselves, and for the moment our guests, and we extend our cordial welcome to our new colleagues.

COMMENTS ON THE B.M.A. CONFERENCE

In reviewing the subjects discussed at the B.M.A. Conference held in Edinburgh during July, one cannot but be impressed by the large amount of time devoted to a discussion of ethical standards of conduct by members of the medical profession. There is a noticeable tendency towards an attempt to bring these standards into line with trends in medical knowledge, and it is probably rather overdue.

Anonymity in broadcasting has probably provoked more discussion recently than any other topic (the controversy of advertising was the subject of the Editorial in this Journal, June 1959). A proposal that "appearing by name on television or being announced by name over the sound radio is not *per se* unethical, but any practitioner taking part in such activity should be made fully aware of the perilous path which he is treading and the risk which he runs" was lost, and this was probably rather unfortunate. Perhaps the time is not quite ripe for this yet. That Dr. Wand suggested that the Association was a little archaic in its attitude to this subject, is a good sign; it is to be taken up again next year.

The topic of professional secrecy with regard to information of a third party was also argued with vigour. A notion suggesting that "on certain occasions it be necessary to

acquiesce in some modification" was carried. One wonders whether the seal of secrecy has been broken once and for all. The danger lies, of course, in the possibility of the loss of an absolute confidence in the profession, and the debate on this subject is always whether or not this possibility outweighs the benefit to the public which derives from a disclosure of information. Even the Hippocratic Oath seems to allow for this eventuality. "And whatsoever I shall see or hear in the course of my profession . . . if it be what should not be published abroad, I will never divulge, holding such things to be holy secrets". It remains a most debatable matter, and one must tread warily.

The publication of the pamphlet "Getting Married" was once again discussed. It is encouraging to find that headings of the nature of "Is chastity outmoded? Outdated? Out?" are vigorously decried by the profession at large. This is in marked contrast to the discussion on Artificial Insemination in which a suggestion was made that ethical and moral principles should not be discussed beside the scientific facts because of widely varying views on the matter. This suggestion, however, was not accepted by the meeting which thereby maintained its dominant note of keeping ethics and morals in harmony with medical scientific progress.

Publicity

The headline "Women in the Eights? Not for us says Bart's," appeared in the lunch-time edition of the "Evening Standard" on September 11th. Many were surprised to see this, many indignant. It provides just one more instance of the peculiar ability of the Press to make public domestic affairs which can at least be a nuisance to the people concerned, if not positively harmful. This item of news could have no possible interest for the general public—a fact which is borne out by its removal from later editions of the paper. Such publicity could have little effect but to stir up animosity amongst those who have been at pains to negotiate this matter delicately in the committee of the United Hospitals' Rowing Club.

There are no copyright laws involved in this incident, for the Journal is acknowledged, and accurately reported. While the

freedom of the Press should be extolled, it is a pity that some editorial bodies seem to have little ability to discriminate between matters of delicacy, of sensationalism, and of true interest.

Fifty Years Ago

It appears that interest in Medical Etiquette almost resulted in a series of lectures on this subject. It was thought, however, that the curriculum was already too full and instead an interesting article by J. Valerie appeared in the Journal. The ethical background of Medical Etiquette has not changed and the advice given would still be of value today. It is, however, amusing to note the following:

"A telephone is, of course, a necessity. Let me suggest to you that you cut it off at night after retiring to bed, unless you have

a confinement imminent or a very serious case. It is so very easy for nervous people to ring you up unnecessarily, and you will find that urgent cases will always manage to send if you are really wanted."

The Editor comments on the attractions of Bart's for intending medical students, especially as the new Out-Patient and Pathology Departments had just been completed: "Its antiquity may influence some in its favour. Its historical site, its ancient traditions, the long roll of illustrious names connected with its school may well decide many waverers finally to adopt it as their alma mater. Yet on the other hand our Hospital has all the exuberant vitality of youth, and the abundant evidence of this in the working and equipment of our new departments cannot fail to be an inducement to those who look primarily for up-to-date methods and efficiency."

salute at the march past, it was for the first time in history that the President of the Royal College of Surgeons has done so. Sir James himself must have a special loyalty towards the R.A.M.C., T.A., in which he himself served in the early years of the Kaiser's war before he qualified and joined the Senior Service.

He is accompanied in this picture by Colonel W. A. Robinson, O.B.E., M.D., "who made a speciality in assault landings during Hitler's war (Normandy, Sicily, etc.), and by Major Wilson who had an equally adventurous war: having escaped from German hands, he adopted various guises as a civilian, Polish soldier, and French legionnaire, and after six months arrived home via Marseilles, Oran, Dakar and Gambia. With them is also Sergeant Major Rowlands, formerly a mainstay of the Corp's Rugby team".



...for the first time in history...

A Unique Occasion

When Professor Sir James Patterson Ross visited the R.A.M.C. Depot at Crookham on June 4th of this year, inspected six to seven hundred recruits on parade, and took the

Acknowledgment

[The picture and accompanying letter were kindly sent by Major-General R. E. Barnsley, C.B., M.C., curator of the R.A.M.C. historical museum.]

Dr. Walter Mackenzie

The Hospital was pleased to welcome Dr. Walter Mackenzie as temporary director of the Surgical Unit from 29th June to 9th July. Dr. Mackenzie, who is director of the Department of Surgery in the University of Alberta, Edmonton, was in this country to lecture at Liverpool University and to attend the joint meetings of the British and Canadian Medical Associations in Edinburgh.

During his stay Dr. Mackenzie took ward rounds and held classes in the Surgical Out-Patient Department. He also gave a Clinical Lecture on Islet Cell Tumours.

Hunterian Lecture

Mr. R. L. Huckstep of the Orthopaedic Department will deliver the Hunterian Lecture at the Royal College of Surgeons on Tuesday, 17th November, at 5 p.m. His subject will be "Recent Advances in the Surgery of Typhoid Fever". All members of the staff and students are very welcome.

Rugger Club Dance

On Saturday, 18th July, a large number of people appeared for a dance which never took place. This was unfortunate for these people, for the reputation of these dances, and for that of the Rugger Club by whom it was sponsored. The reason?—a failure to make sufficient profit on the previous dance; another such failure was not to be risked. The decision was not a good one, and the cancellation notices completely inadequate.

There is considerable competition between the various Sports Clubs to sponsor these dances for the financial reward towards which end they are run. Every undertaking has its risks and it is deplorable that the Rugger Club failed in its responsibility to proceed with such an extensively advertised project. Let us hope that it can manage its finances rather more competently in the year to come.

The Flood

On August 21st, a tropical thunderstorm of proportions almost unknown in this country struck Bart's and the City with a vengeance. The Square was soon inches deep in water, and very soon the the Refectory and various cellars were also inundated. The curious feature of this storm was its very limited character; even in places as near as

the West End it was not even raining. One is left to speculate why we deserved such punishment from above.

St. Bartholomew's Day

According to legend, St. Bartholomew, after a life's work of preaching Christianity to the Indians, was martyred by King Astyages, in the year 44 A.D. We are told that he was flayed on the 24th of August, and beheaded on the 25th. Thus, by general agreement, his feast is kept on August 24th.

In keeping with the old traditions of the Church, the Feast was kept as a Holy Day: in some places he is still sufficiently esteemed among pious folk for them to choose his feast as a traditional First Communion day, or as a day of pilgrimage to his Shrine or dedicated Church. The Holy Day subsequently became a holiday, and the customs and practices of that day were associated with legends about the Saint. As a result of his flaying, he became the patron of all leather-workers, and eventually of tanners, bookbinders, glove-makers, cobblers, tailors, butchers, and plasterers. They were responsible for one of the most famous St. Bartholomew's Day celebrations, the St. Bartholomew's Fair in Smithfield. Instituted by Rahere in 1133, by Royal Charter from Henry 1st, it soon became one of the most important leather and cloth markets of England. It was traditionally opened by the Lord Mayor, and lasted for two weeks each year. In 1691 it was reduced to four days, and moved to September. This was the beginning of its decline. In 1840 it moved to Islington, but some years later, being condemned as licentious, it was dissolved entirely.

The Feast is still kept here by a service in St. Bartholomew the Less. But the Fair, doubtless very popular, has gone. It is surprising that medics with their almost proverbial capability for celebrating anything at the slightest provocation, do not still follow "The Olde Forme of the Proclamacion of Bartholomew Fayre in King Edwarde the Seconde Hys Reygne . . ." " . . . that all men sellors of Bere, Wyne or Ale sell by measure ensealed as by galon, potell, quarte and pynte a galon of the best ale for ijd (2d.) . . . a pynte for qns (½d.) upon pain that woll fall thereof . . ."

Acknowledgement. These notes were made from the authoritative series of articles by J. B. Dawson in the *Journal* of 1956.

AN APPRECIATION: DR. E. B. STRAUSS

Eric Benjamin Strauss retired in February 1959, having served for twenty-one years as Physician in Psychological Medicine at Bart's.

He was born in London on 18th February, 1894 and educated at Oundle and University College School.

After leaving school he travelled abroad to study foreign languages and after war service read medieval and modern languages at New College, Oxford. His outstanding classical scholarship combined happily with his medical and scientific knowledge to the enrichment of his published work, speeches and lectures, and to the enjoyment of his friends and colleagues.

During the first World War he served as Captain in the Infantry Division of the Middlesex Regiment both at home and in the field.

After completing his language studies he started medicine at Oxford and later proceeded to King's College Hospital for clinical studies, qualifying B.M., B.Ch. in 1924.

His postgraduate training in psychological medicine was obtained at Guy's Hospital, the Tavistock Clinic and the Cassell Hospital. He also studied in Germany and worked in close association with the renowned Ernst Kretschmer. He translated Kretschmer's classical textbook of Medical Psychology into English, and Strauss for many years has been the foremost exponent of Kretschmer's teachings in this country. His academic distinctions include M.R.C.P. 1926, D.M. 1930, F.R.C.P. 1939 and an honorary D.Sc. awarded on his sixtieth birthday by the University of Frankfurt.

Dr. Strauss arrived at Bart's in 1938 and immediately devoted himself to the development of the practice and the teaching of psychiatry in the hospital. During his 21 years at the hospital he has fostered and promoted the growth of the Department of Psychological Medicine from its early infancy to full maturity.

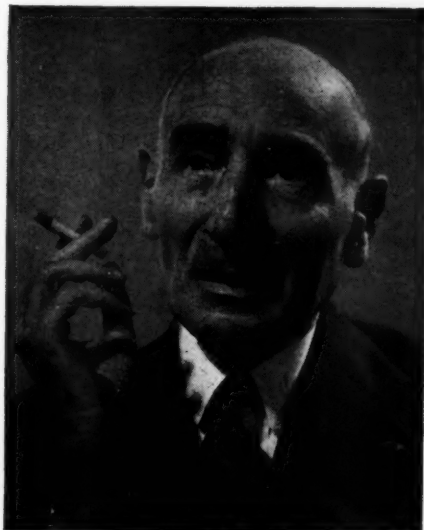
In many ways psychiatry is one of the most difficult subjects to teach on out-patients to medical students. Dr. Strauss devoted special attention to this form of teaching with great success. Always an interesting and lucid teacher, he influenced students not only by imparting knowledge but also by the fine example given by his kind

and understanding approach to patients. He has a broad outlook on psychiatry and is eclectic regarding treatment, employing physical methods or various psychotherapeutic techniques according to the patients' needs. Strauss' therapeutic enterprise and initiative is attested by the fact that the first out-patient clinic in the world for electro-plexy, was opened by him at Bart's in 1940.

He took a keen interest in students' activities and has been President of the Students' Union, Vice-President of the Dramatic Society and President of the Boxing Club.

Dr. Strauss in addition to his hospital work, managed to find time in his very busy life for important medical activities. He was elected President of the Section of Psychiatry of the Royal Society of Medicine, Honorary Secretary to the Committee for Psychological Medicine of the Royal College of Physicians and Croonian Lecturer in 1952; President of the British Psychological Society; Examiner for the D.P.M. of the Conjoint Board and was the first President of the Psychoendocrine Association.

In addition to all these activities he has written numerous scientific articles and contributions to books. He is co-author with Sir Russell Brain of "Recent Advances in Neurology and Psychiatry" and a series of his articles appearing in the "Sunday Times"



was recently published as the book "Psychiatry and the Modern World".

Any picture of Dr. Strauss would be very incomplete if reference was not made to his many interests and artistic talents. As well as having considerable talent as an actor he has composed many songs and a recital of his work was given in London a few years ago. He has one of the best collections of long playing records in London and on many occasions has entertained groups of students to musical evenings. He enjoys mountain walks and is a keen swimmer. He has always been ready to help anyone in need and over many years has rendered practical and effective aid to large numbers of doctors from oppressed European countries.

As a personality E. B. Strauss presents a combination of grace, dignity, courtesy and a fine presence. His splendid character was clearly shown during his recent illness and won admiration and provided an inspiring example to everyone.

Since his retirement from the hospital he has continued to be as active as ever, and it is certain that medicine will continue to benefit from his keen intellect, wisdom and knowledge based on long experience and characteristic enthusiasm.

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Journal Staff

The following appointments have been made: R. Miller is to be Assistant Manager. Miss B. Franklin is to be the Nurses' Representative.

The Journal

The Editor would like to apologise to readers for the late appearance of recent Journals. This is still the result of the recent printing strike which lasted for seven weeks. It is our policy not to miss an issue, but rather to bring them out in as rapid succession as possible: in this way the situation should be rectified before the end of the year.

The Calendar has been re-introduced into this issue and we hope that the Journal will appear while it is still useful.

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CALENDAR

NOVEMBER

- Sun. 1—Medical and Surgical Units and Mr G. H. Ellis on duty.
- Mon. 2—Rugger v. Devonport Services (A).
- Wed. 4—Rugger v. Penzance (A).
Soccer v. U. C. H. (A).
Hockey v. K. G. S. (A).
- Thur. 5—Soccer v. King's College, Cambridge (A).
- Fri. 6—Soccer v. Trinity Hall, Cambridge (A).
Dr. Bodley Scott on duty
- Sat. 7—Mr. A. H. Hunt on duty
Mr. F. T. Evans on duty
Rugger v. K.C.S.O.B. (A).
Hockey v. Sevenoaks (H).
- Mon. 9—Film Society: "San Demetrio London."
- Sat. 14—Dr. A. W. Spence on duty
Mr. C. Naunton Morgan on duty
Mr. R. A. Bowen on duty
Rugger v. Old Cranleighians (H).
Soccer v. Middlesex Hospital (H).
Hockey v. Bexley Heath (A).
- Wed. 18—Hockey v. Tulse Hill Wanderers (H).
- Sat. 21—Dr. G. Hayward on duty
Mr. A. W. Badenoch on duty
Mr. R. W. Ballantine on duty
Rugger v. Old Alleynians (A).
Soccer v. Caledonians (H).
- Mon. 25—Film Society: "I vitelloni."

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Film Society

The second programme on October 26th is a double bill: "Battleship Potemkin" and "Way Out West".

"Way Out West" is a Laurel and Hardy comedy—musical dealing with their adventures in a gold-mining town where they are trying to find the daughter of their late partner to hand over title deeds.

"Potemkin", Eisenstein's silent classic made in 1925 is the story of the mutiny by the sailors of the Battleship Potemkin against their officers during the Russian Revolution of 1905. They are befriended by

the people of Odessa who send food and wave to them from a huge flight of steps on the waterfront. This sets the scene for the most influential six minutes in the history of the cinema: the appearance of White Russian soldiers at the head of the Odessa steps and the subsequent panic and massacre of the townspeople. One cannot fail to be gripped by the incredible artistry of this sequence, which set a standard that has hardly been bettered today.

* * *

"San Demetrio, London," on November 9th is an epic, a British film about the tanker of that name belonging to a convoy unsuccessfully but heroically defended by Fegen in H.M.S. Jervis Bay against the Admiral Scheer. San Demetrio was set ablaze and abandoned by her crew. The tanker did not sink and several days later the crew returned and in imminent danger of being blown up, put out the fire and sailed the ship back to England with the greater part of her cargo intact.

This film was directed by Charles Frend for Ealing Studios and is one of the best the semi-documentary films produced during the war.

Adrian Padfield.

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ANNOUNCEMENTS

Engagements

EVANS—IVOR-JONES. — The engagement is announced between Dr. T. Arwyn Evans and Carys Ivor-Jones.

LANGLEY—DUCKER.—The engagement is announced between David Langley and Susan Ducker.

NEWTON—THOMAS.—The engagement is announced between Dr. Michael A. Newton and Jane Thomas.

Marriages

HALL-SMITH—STODDART.—On June 17th, at the British Embassy Church, Paris, Michael Hall-Smith to Hilda Stoddart.

WELLS—ROLLESTON. — On July 18th, Dr. Bertrand Wells to Jenifer Rolleston, widow of Major S. C. Rolleston, M.C.

Births

NORBURY.—On August 1st, to Jennifer, wife of Dr. Keith Norbury, a son.

TAIT.—On July 14th, to Janet, wife of Dr. Ian Tait, a daughter (Lucilla Jane).

Deaths

CUNNINGHAM. — On July 1st, Arthur John Wellington Cunningham. Qualified 1908.

WADE.—On July 2nd, Dr. Richard Herbert Wade. Qualified 1922.

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Changes of address

Dr. T. B. Boulton,
Fairfield,
Victoria Road,
Wargrave,
Berks.

Dr. R. A. Bugler,
9, Queen Street,
Cheadle,
Staffs.

(We regret that the incorrect address for Dr. Bugler was published in the June journal).

Dr. H. W. Bunjé,
73, Temple Sheen Road,
London, S.W.14.

Mr. S. H. C. Clarke,
105, The Drive,
Hove 4,
Sussex.

Mr. R. S. Corbett,
149, Harley Street,
W.1.

and

Katrina,
London Road,
Chalfont St. Giles,
Bucks.

Dr. T. W. Newton Dunn,
Deerholt,
Froggham,
Fordingbridge,
Hants.

Dr. C. C. Molloy, Hartwood Lea,
19, Kensington Road,
Chorley,
Lancs.

Dr. G. Stokes,
159, Nimrod Road,
London, S.W.16.

Research At Bart's

DEPARTMENT OF PHYSICS

Teaching

Although the stress in this very progressive department is laid on research, teaching plays an important part in its work. The role of physics in the medical curriculum is clearly becoming important, because of the increasing dependence (for both diagnosis and treatment) on instruments, techniques and on the use of various radiations. For this reason, members of the department believe that "medical" physics should be taught at medical schools, and exemption not obtained earlier. No less important is the training in scientific method, for which physics provides an excellent introduction, and which must clearly be a more important facet of 20th century medical education.

The teaching of the department, however, is not limited to the undergraduate level. Two courses for graduates are already in existence, and more are to be introduced. At present courses are provided for the Diploma in Medical Radiology as well as a course in radiation physics, which includes its biological aspects; the planned Academic Diploma in Radiation Protection will be open to graduates in any subject, including medical students

Research

(a) *Radiology.* The Research projects are numerous, and because most of them centre around the field of Radiobiology (the effects of radiation on living tissue), much of the work is done in conjunction with other departments. Physicists, chemists, biochemists, cytologists, geneticists, physiologists, pathologists and radiologists are all required in such studies, which range from pure ionic physics and the effects of radiations on simple water, to the examination of their effect on the whole animal, which must be investigated from every angle. For such work a team is required, trained in the relevant aspects of most of the sciences as we know them today, and for this reason Radiobiology must soon become a subject in its own right.

The main tool of research here is the linear accelerator, which delivers a narrow beam of electrons or X-rays, or both, at 15 million volts, and is capable of delivering a dose of 20,000 roentgens in 2 micro-seconds.

All these features are important. The narrow beam enables accurate localisation (for example, rats' testes have been irradiated without involvement of the rest of the animal); the high intensity is important so that high doses may be delivered in short periods, thus making possible the investigation of very short-lived radio-active products.

(b) *Physics.* New methods of measuring radiation dosage have been devised which involve only a piece of perspex; they are cheap, quick and reliable, and are now being used by other workers. The absolute determination of energy in the beam is investigated by calorimetric methods.

(c) *Chemistry.* The effect of dose rate on the yield of chemical reactions initiated by radiation is being investigated: the production of radicles with a very short life has for the first time been established.

(d) *Biochemistry.* Work in this field is being done in collaboration with Professor Wormall and the Chester Beattie Institute. The destructive effects of radiation on metabolism, and the inactivation of enzymes, are being studied and also its effects on DNA.

(e) *Cytology.* Together with Dr. Lacy of the Zoology department, the recently acquired Electron Microscope is being used to observe radiation changes at a cellular level, in, for example, irradiated testes of rats.

(f) *Physiology.* Together with Dr. Lindop from the Department of Physiology, the effects of whole-body irradiation of mice are being studied, with particular regard to the ageing process. The results show an increase of rate of the normal processes of ageing. In other words, the animal behaves as though it were older than in fact it is, and the ageing is proportional to the dose of radiation. Survival curves (Fig. 1) illustrate this clearly: the curves for the irradiated mice have the same slope as for the controls, but are displaced to the left. The most important causes of death in mice are neoplasm, leukaemia and degenerative conditions of kidneys and liver: it is interesting to notice that up to a certain dose of irradiation the actual incidence of these diseases is hardly increased, although as explained, the age at which they acquire them is lowered; above

a certain dose, the incidence of malignant diseases actually decreases, possibly because of a certain amount of tissue damage.

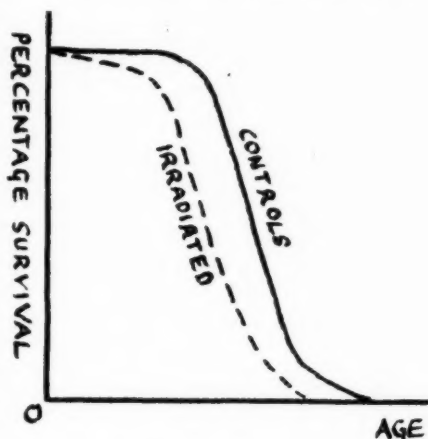


Fig. 1.

The discovery that the effect of irradiation is dependent on the age of the animal is also of the greatest importance (Fig. 2). This affects all work in this subject which was previously carried out without regard to age, and perhaps even more important, may affect dosage in radiotherapeutics.

At present work is in progress to determine whether the long term effects of irradiation, such as a shortening of life, are inherited.

(g) *Clinical Research.* Much of the work of the department is conducted in conjunc-

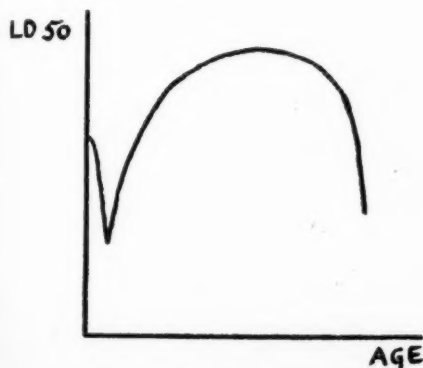


Fig. 2.

tion with the department of Radiotherapy in the hospital. Radio-isotopes for use in diagnosis and therapeutics are examined; they are also used in the investigation of certain diseases. Thus the thyroids of deaf children are examined; the turnover of iron and chromium in leukaemias and other blood diseases are studied. Isotopes are also used for the investigation of congenital heart lesions (e.g. valvular defects) and have the great advantage that these may be more accurately located than before.

The application of radiotherapy is to be expanded. A new department is at present being built on a site across Little Britain. It is to house the linear accelerator and also a new machine for the provision of cobalt irradiation. The great advantage of a high energy radiation is that it can be delivered

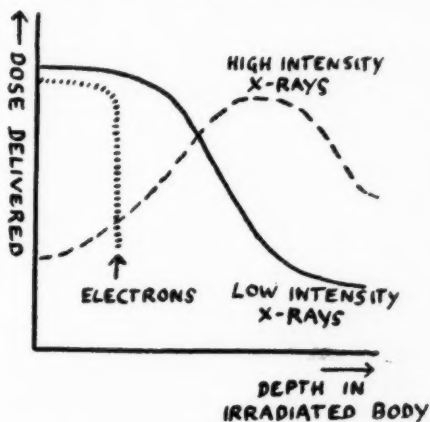


Fig. 3.

inside the body with minimal effect at the surface, which is by contrast with the older methods whose maximum effect is at the surface. Thus a much higher dose can be delivered safely at an internal target than formerly. A further advance in this field is in the delivery of electrons which do not penetrate far, and are therefore most useful for lesions nearer the surface which can be attacked without unnecessary internal damage, (Fig. 3).

Another investigation in the clinical field is into the effects of thorotrast, which was for 30 years used in angiography, until it was realised that it was radio-active, remained in the body, and has even caused cancer. Measurements of radio-activity in tissues

which have been subjected to this substance are made by exposure on to a photographic plate from which can be calculated the courses and energy of the emitted particles.

(h) *Nuclear Physics*. The structure of the atomic nucleus is being studied. Nuclei are bombarded with protons and other fast particles in a cyclotron (at Birmingham) and photographic plates exposed so as to record the energy levels and lifetimes of the nuclei which are the products of the disintegration. The linear accelerator is being used to study the properties of neutrons whose lifetime is of the order of 100 micro-seconds (depending on the medium). It is later intended to extend this field to the examination of biological material.

Selection of recent publications from the Physics Department.

1. J. W. BOAG.—A spark light source for high speed absorption spectrography. *2nd International Congress of Photobiology*, 109, 1957.
2. H. C. SUTTON and J. ROTBLAT.—Dose-rate effects in radiation-induced chemical reactions. *Nature*, 180, 1332, 1957.
3. W. M. GIBSON, D. J. PROWSE and J. ROTBLAT.—The scattering of 9.5 Mev protons by He, C, N, O, F, Ne, A, Kr and Xe nuclei. *Proc. Roy. Soc.*, 243, 237, 1957.

4. J. A. V. BUTLER, R. H. PAIN, A. B. ROBINS and J. ROTBLAT.—The relative effects of direct and indirect actions of ionizing radiations on deoxyribonucleic acid. *Proc. Roy. Soc.*, 149, 12, 1958.
5. J. KIRBY-SMITH and G. W. DOLPHIN.—Chromosome breakage at high radiation dose-rates. *Nature*, 182, 170, 1958.
6. J. W. BOAG, G. W. DOLPHIN and J. ROTBLAT.—Radiation dosimetry by transparent plastics. *Radiation Research*, 9, 589, 1958.
7. D. WEITZMAN and J. McALISTER.—Tracer method for localising left-to-right cardiac shunts. *The Lancet*, 1356, 1958.
8. J. ROTBLAT and G. WARD.—Autoradiograph measurements of the bones of a radium worker. *British Journal of Radiology*, Supplement 7, 90, 1958.
9. J. ROTBLAT and others.—The Nuclear Reaction $\text{He}^4(a, p)\text{Li}^7$ and its inverse. *Nuclear Physics*, 5, 141, 1958.
10. J. ROTBLAT and others.—The scattering of alpha particles by helium. *Proc. Roy. Soc.*, 251, 143, 1959.
11. G. W. DOLPHIN, N. H. GALE and A. L. BRADSHAW.—Investigations of high energy electron beam for use in therapy. *British Journal of Radiology*, 32, 13, 1959.
12. P. LINDOP and J. ROTBLAT.—Ageing effects of ionizing radiation. *Progress in Nuclear energy*, 2, 58, 1959.
13. M. L. CROSFILL, P. LINDOP and J. ROTBLAT.—Variation of sensitivity to ionizing radiation with age. *Nature*, 183, 1729, 1959.
14. J. BOUNDEN and J. ROTBLAT.—Vacuum in Medicine. *Vacuum*, 9, 1, 1959.

APPOINTMENTS

University of London.

DR. J. L. D'SILVA, Professor of Physiology at London Hospital Medical College, has been appointed to the Halliburton Chair of Physiology at King's College.

Royal College of Surgeons.

At a meeting of the Council on July 9th, the following elections were made for the ensuing year:

Hunterian Professorship: J. D. Griffiths,
R. L. Huckstep.
Erasmus Wilson Demonstratorship:
A. G. Stansfeld.

Royal College of Physicians.

The Baly Medal has been awarded to Dr. I. de Burgh Daly.

European Academy of Allergy.

DR. E. LIPMAN COHEN has been appointed Secretary of the Sub-Committee on the History of Allergy of the European Academy of Allergy.

Medical Staff

The following appointments to the medical staff take effect from the dates mentioned:

Dental Department

Registrar (part-time)
Miss N. Shotts
Mr. A. Eisenstadt
Out-Patient Assistants
Mr. J. R. C. Cooper
Mr. J. L. Marsden
Mr. W. A. Berwick
Dr. Cullinan's Firm

Senior Registrar (Chief Assistant)
Dr. J. A. Parrish (1/9/59)

Dr. Bodley Scott's Firm

Senior Registrar (Chief Assistant)
Dr. J. Q. Matthias
Junior Registrar
Mr. J. J. Misiewicz (1/11/59)

Dr. Hayward's Firm

Junior Registrar
Mr. P. H. N. Wood (1/11/59)

Department of Pathology**Registrars**

Mr. B. A. L. Hurn (1/9/59)

Mr. A. J. Salsbury

Mr. J. S. Murrell (1/10/59)

Department of Anaesthesia**Registrar**

Mr. J. P. N. Hicks (12/9/59)

replacing Mr. A. M. Keil

Skin Department

Senior Registrar (Chief Assistant)

Miss A. Scott (1/10/59)

E.N.T. Department

Senior Registrar (Chief Assistant)

Mr. A. Fuller (1/9/59)

Senior Registrar (part-time)

Mr. P. Timmis

Out-Patient Assistant

S. Shere (1/9/59)

Prize-Winners**Matthews Duncan Medal & Prize:**

Patterson, M. J. L.

Prox. Access: Cantrell, E. G.**Wix Prize:** Barton, M. T.**Senior Scholarship in Anatomy,****Physiology & Biochemistry:**

Collins, P., Lewis, M.G., aeq.

Herbert Paterson Medal: Cotton, S. G.**Foster Prize:** Lewis, M. G., Merry, R. T. G., aeq.**Treasurer's Prize:** Robertson, A. G.**EXAMINATION SUCCESSES****Royal College of Surgeons**

The following Candidates were successful in the recent Primary Fellowship Examination of the Royal College of Surgeons in June 1959.

Cameron, A. E.

Poirier, H.

White, H. J. O.

Stainsby, G. D.

The following Candidates were successful in the Primary Fellowship Examination of the Faculty of Anaesthetists in June 1959.

Beard, M. F.

Topham, P. A.

Stevens, J. H.

Hutchinson, R.

Coldrey, P. A.

CONJOINT BOARD**First Examination—June 1959****Pharmacology**

Gould, W. A.

Birt, R. C.

Gould, S. E.

Abell, J. D.

Bonner-Morgan, B. M.

Telfer, A. C.

Hare, B. W. E.

CONJOINT BOARD**Final Examination—July 1959****Pathology**

Cox, T. A. R.

Robinson, J. S.

Hudson, M. J. K.

Roles, W.

Gould, W. A.

Medicine

Thomson, R. G. N.

Plant, J. C. D.

Tooby, D. J.

Midwifery

Thomson, R. G. N.

Dobson, J. L. C.

Alabi, G. O.

Bonner-Morgan, R. P.

The following have completed the examinations for the Diploma:

Dobson, J. L. C.

Gould, A. M.

Sugden, K. J.

Warrander, A.

Bonner-Morgan, R. P.

Surgery

Dobson, J. L. C.

John, R. W.

Gould, A. M.

Townsend, J.

Warrander, A.

Alabi, G. O.

Bonner-Morgan, R. P.

Sugden, K. J.

UNIVERSITY OF LONDON**Special Second Examination for Medical Degrees, July 1959**

Balfour, A. J.

Marsh, A. R.

Britz, M.

Robinson, L.

Colin-Jones, D. G.

Sandhu, M. S.

Ducker, P. S.

Stevenson, M. C.

Harcup, T. J. O.

Watkin, B. C.

Hutchinson, D. B. A.

Blake-James, R. B.

Joy, P. J.

Butler, P. W. P.

Perry, P. M.

Davies, R. K.

Smyth, N. W.

Guest, A. D. L.

Turner, G. M.

Howell, F. A.

Rushman, G. B.

Iregbulem, L. M.

Bergel, R. C.

Patrick, P. L.

Brodrigg, A. S.

Shearer, R. J.

Dacie, J. E.

Ross, A. P. J.

Fonseka, Y.

Terry, A.

Healey, J.

Wilson, A. I.

Ind, J. E.

Special First Examination for Medical Degrees, July 1959

Bressler, A.

Shearman, J. K.

Letchworth, A. T.

Haig, G.

Philips, J. F.

Phillips, M.

Groves, R. J.

Tucker, A. K.

Percival, G. M.

The following General Certificate of Education Candidates have qualified for exemption from the First Medical.

Anderson, J. S.

Gilkes, J. J. H.

Frears, C. C.

Harrison, J. R.

Hillier, E. R.

Moss, M. S.

Williams, M.

Casewell, M. W.

Bond, J. V.

Salisbury, N. S.

UNIVERSITY OF OXFORD**2nd B.M. Examination—Trinity Term 1959
Pharmacology & Principles of Therapeutics**

Busfield, H. M. B.

Medicine

Ellis, R. P. Branfoot, A. C.
Fuge, C. A. Lyon, D. C.

Surgery

Branfoot, A. C. Ellis, R. P.
Lyon, D. C. Fuge, C. A.

Midwifery

Branfoot, A. C. Fuge, C. A.
Ellis, R. P.

The following completed the examination for the degree **B.M., B.Ch.**

Branfoot, A. C. Fuge, C. A.
Ellis, R. P.

UNIVERSITY OF CAMBRIDGE**Final M. B. Examination—Easter Term 1959****Part I: Pathology & Pharmacology**

Boston, F. M. Church, R. B.
Hobday, G. R. Gabriel, R. W.

Part II: Medicine

Abercrombie, G. F. Lee, B. K.
Drinkwater, P. Parkes, J. D.
Gabriel, R. W. Strang, F. A.
Hobday, G. R. Dick, D. H.
Jephcott, C. J. A. Evans, G. H.
Maurice-Smith, N. J. Hindson, T. C.
Richards, D. A. Hurding, R. F.
Bowles, K. R. Mather, J. S.
Duff, T. B. Perkins, B. A. W.
Godwin, D. Williamson, C. J. F. L.
Hobday, J. D.

Part II: Surgery

Abercrombie, G. F. Hindson, T. C.
Duff, T. B. Jephcott, C. J. A.
Haslam, M. T. Perkins, B. A. W.
Hurding, R. F. Williamson, C. J. F. L.
Parkes, J. D. Drinkwater, P.
Tooth, J. S. H. Hamilton, S. G. I.
Dick, D. H. Hobday, J. D.
Gabriel, R. W. Mather, J. S.
Strang, F. A.

Part II: Midwifery

Abercrombie, G. F. Hobday, J. D.
Church, R. B. Mather, J. S.
Duff, T. B. Perkins, B. A. W.
Godwin, D. Williamson, C. J. F. L.
Hindson, T. C. Cantrell, E. G.
Jephcott, C. J. A. Drinkwater, P.
Parkes, J. D. Faber, V. C.
Strang, F. A. Gabriel, R. W.
Bowles, K. R. Hurding, R. F.
Dick, D. H. Maurice-Smith, N. J.
Evans, G. H. Richards, D. A.
Hamilton, S. G. I.

The following completed the examinations for the degree **M.B., B.Chir.:**

Abercrombie, G. F. Jephcott, C. J. A.
Duff, T. B. Perkins, B. A. W.
Haslam, M. T. Williamson, C. J. F. L.
Hurding, R. F. Drinkwater, P.
Parkes, J. D. Gabriel, R. W.
Tooth, J. S. H. Hobday, J. D.
Dick, D. H. Mather, J. S.
Faber, V. C. Strang, F. A.
Hindson, T. C.

"BART'S JOURNAL"

The Journal's cover now displays

An excellent design:

Its readers all approve and praise

Its most attractive line.

They notice also how the hue

Each month is subtly changed,

And how appropriately too

The colours are arranged:

Blue, white, grey, yellow, brown or green.

The monthly parts appear,

Symbolic of the changing scene

Throughout the changing year.

Kaleidoscopically bound

They mark the season's flight:

In January, like the ground,

The cover's snowy white.

In April green brings gay relief.

The halcyon blue for May,

October's sere or yellow leaf,

November's brown or grey.

But now, it seems, we must prepare

To flout the almanac—

The Printers' Union may declare

September's number black!

R.B.P.

Dysphagia Lusoria

by R. L. ROTHWELL JACKSON

(House-Surgeon)

Lusoria, (Latin *lusus*: a trick or joke) may seem a strange adjective to use, in naming a difficulty in swallowing due to the pressure on the oesophagus by an aberrant artery. It was Bayford¹ (1794), who first coined the term *dysphagia lusoria*.

He described a case of a woman aged 62, who eventually died of emaciation following dysphagia of increasing severity. At post mortem, he found an abnormal right subclavian artery arising from the left side of the aortic arch and passing between the trachea and oesophagus, compressing the latter as it crossed to the right side of the thorax. Bayford described this as "*lusus naturae*" or a trick of nature, thus giving origin to the term *dysphagia lusoria*, a strange mixture of greek and latin derivations.

Although classical *dysphagia lusoria* is due to an abnormal right subclavian artery; the term is now used to describe dysphagia confined to the upper third of the oesophagus, and caused by an aberrant great vessel i.e. the aortic arch or its branches due to abnormalities of development.

Embryology

At the beginning of somite formation, paired dorsal tubular vessels are found one on each side of the notocord. At the cephalic end of the embryo the dorsal vessels continue round the sides of the pharynx forming the curved first arch arteries, which in turn connect with paired ventral tubes, which fuse to form the single endothelial heart tube. Five other arch arteries are formed, connecting the ventral and dorsal aortae. Caudally, at about the third week, the paired dorsal aortae fuse to form a single definitive descending aorta.

During further development, some of the arch arteries disappear and some persist to form definitive vessels. The arterial side of the circulation becomes predominantly left-sided so that the left dorsal aorta persists helping to form the left-sided aortic arch. The first two arch arteries disappear. The third arch arteries persist forming the common carotid at their ventral ends, the dorsal ends joining the dorsal aortae which extend forwards beyond the first arch, to form

the internal carotid arteries on each side. The fourth arch arteries persist and increase in size forming on the right side the root of the right subclavian artery and on the left side the arch of the aorta. The fifth arch arteries are only transitory. The sixth arch arteries persist as the roots of the pulmonary arteries, but their connection with the dorsal aorta persists on the left side only as the ductus arteriosus.

The definitive vascular pattern (Fig. 1) is completed by the disappearance on both sides of the dorsal aortae between the third and fourth arch arteries, and the disappearance of the right dorsal aorta below the fourth arch artery. The left subclavian arises by hypertrophy of a segmental branch of the left dorsal aorta. The bulbus cordis becomes divided into an aortic and pulmonary trunk by the development of a spiral septum.

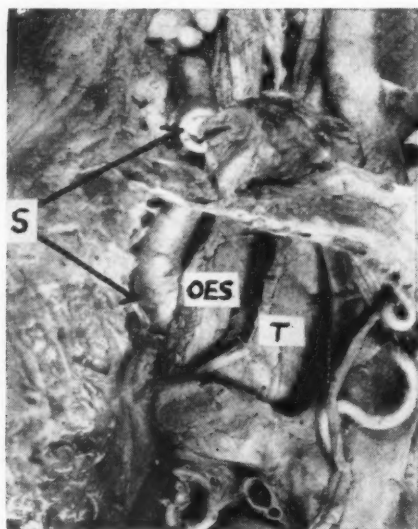
The aberrant vessels causing *dysphagia lusoria* arise as a result of departure from the above normal pattern of development, and can be considered in three groups.

A. Abnormalities associated with a left aortic arch.

The commonest of these is the abnormal origin of the root of the right subclavian artery from the arch of the aorta as its fourth branch. It occurs in about 1% of dissected specimens² and the photograph shows a dissection of one such case. This abnormality is due to failure of the right fourth arch to form the root of the right subclavian artery, which latter is formed by the persistence of the right dorsal aorta and passes usually behind, and sometimes in front of the oesophagus. The fourth arch may, as in the dissected specimen, persist as the origin of the right vertebral artery from the right common carotid (Fig. 2). The abnormality may be associated with abnormalities of the thoracic duct, but, in the specimen dissected, both the thoracic and right lymphatic ducts emptied normally into the angle between the internal jugular and subclavian veins.

Bayford's case showed the subclavian artery passing between the oesophagus and trachea. An earlier case (1735) was reported by Hunand³ where the artery passed behind the oesophagus. Holzapfel⁴ analysing this abnormality found 107 instances of

the artery passing behind the oesophagus; 20 where it passed between the oesophagus and trachea and 6 where it passed in front of the trachea. The right recurrent laryngeal nerve no longer hooks round the subclavian artery, but passes direct to the larynx at the level of the cricoid, or hooks round the first part of the vertebral artery if this arises from the carotid.⁴ It is difficult to explain the occurrence of those cases (e.g. Bayford's), in which the abnormal subclavian artery passes between the oesophagus and trachea. Presum-



Showing the aberrant subclavian artery (S)
(OES-Oesophagus; T-Trachea)

ably an aberrant vessel in this position becomes hypertrophied and gains a connection with the right dorsal aorta, and later becomes the definitive artery.

B. Abnormalities associated with a right aortic arch.

This is the normal pattern in birds, and must be distinguished from transposition of the great vessels (Dextrocardia). A right aortic arch may be of two types. The anterior type of right aortic arch passes anterior to the trachea, over the right bronchus and then descends on the right side of the oesophagus. The posterior type of arch passes over the right bronchus and then deviates to the left behind the oesophagus, becoming descending aorta slightly to the right of the normal posi-

tion. Constriction of the oesophagus is especially likely if the right arch is tethered by

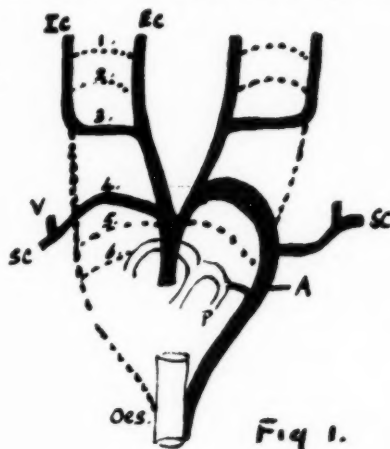


Fig 1.

IC—Internal Carotid
SC—Subclavian
Oes—Oesophagus

EC—External Carotid
V—Vertebral
P—Pulmonary

the attachment to it of the ligamentum arteriosum forming a compression ring. (Fig. 3.) In the majority of cases of right aortic arch, there is a further abnormality in the origin of the left subclavian artery,⁵ which arises as its fourth branch and passes behind the oesophagus in the same way as the aberrant right subclavian artery (Fig. 4). The ligamentum arteriosum may join this abnormal left subclavian artery forming a compression ring.

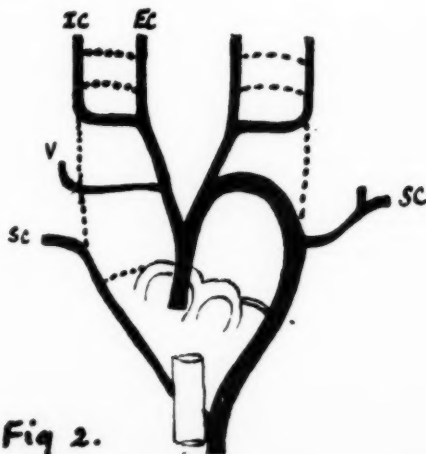


Fig 2.

C. A double aortic arch

This is the normal pattern in reptiles, and is due to the persistence of both dorsal aortae forming a vascular constriction ring, compressing both the trachea and oesophagus (Fig. 5). It is rare in man. The left arch passes anterior to the trachea, and the right arch passes posterior to the oesophagus, and they unite posteriorly. One arch may atrophy, and the left (anterior) is usually smaller than the right (posterior).

Symptoms

The vessel abnormalities described, may be present without causing any symptoms and are then diagnosed by chance post mortem, or during X-ray examination.

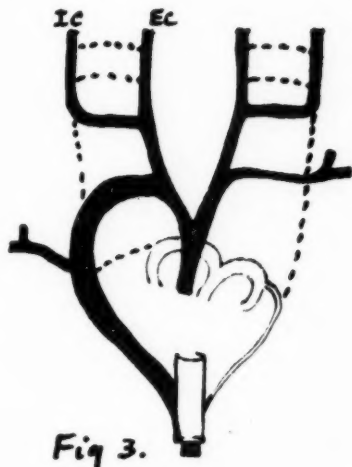


Fig 3.

Symptoms occur in two age groups. Firstly in infancy and early childhood, when the symptoms may resolve spontaneously after 12 months as the vessels become elongated. Secondly, symptoms occur in late middle age, when hardening of the arteries makes them more rigid.

A vascular compression ring is likely to constrict the trachea as well as the oesophagus, and respiratory symptoms of stridor and persistent cough may overshadow the dysphagia. Such symptoms are most common in the first group. Dysphagia is usually first noted when the child is being weaned on to solid food and may be associated with vomiting.

In adults, dysphagia is the usual symptom and may be slight and intermittent, or per-

sistent and severe, causing emaciation, though such severity is rare.

Asherson^{6, 7} has recorded three cases

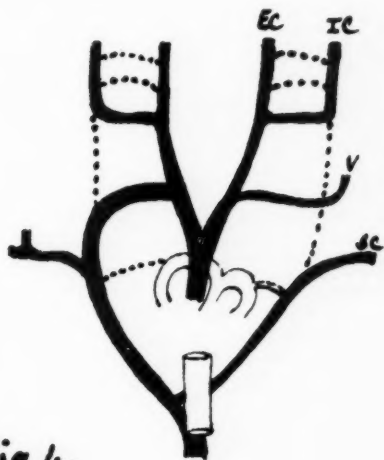


Fig 4.

with symptoms present in infancy and childhood. All had respiratory symptoms as well as dysphagia, due to a double aortic arch in two cases, and a right aortic arch with anomalous left subclavian artery in the third. Doulton⁸ has also reported a case of double aortic arch in a child of 2 years with respiratory and dysphagic symptoms.

Diagnosis

The condition may be suspected from the history. In infants the condition should

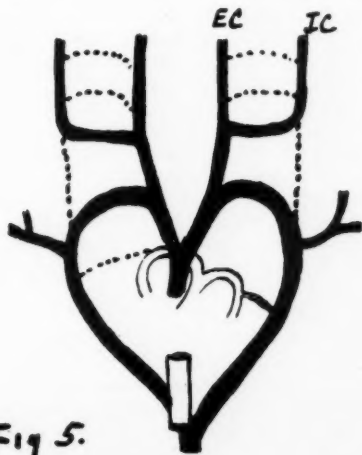


Fig 5.

always be looked for,⁶ when investigations have excluded other causes of dysphagia (e.g. oesophageal stenosis), and other causes of stridor (e.g. thymic enlargement). Endoscopic and X-ray examination with contrast media will confirm the compression of the oesophagus or trachea by the aberrant vessels. Identification of the vessel usually requires an angiogram.

Treatment

Cases with only mild symptoms do not require surgical intervention. Gross⁹ claimed the first reported surgical division of the anterior segment of a double aortic arch with relief of symptoms in an infant. Later¹⁰ Gross et Al. reported 40 cases of compression of the trachea or oesophagus treated surgically by division of an anomalous vessel, or displacement of an artery away from the compressed structure. Cases most amenable to surgery are; right aortic arch anchored by the ligamentum arteriosum; double aortic arch; and aberrant subclavian artery.

Finally it should be stressed that the vessel abnormalities described do not occur uncommonly, but though of interest as "lusus naturae", they usually cause only minimal

disability. Rarely, however, especially in cases of double aortic arch or other compression ring in infants, respiratory symptoms and dysphagia may result from compression of the trachea and oesophagus. It is usually the former which endangers life and requires urgent surgical intervention.

I wish to express my gratitude to Professor Boyd for his advice in preparing this paper, also to the photographic department of the Cambridge Anatomy School for the photograph.

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The High Level Route

From Chamonix to Sass Fee on Ski

by M. BIRNSTINGL

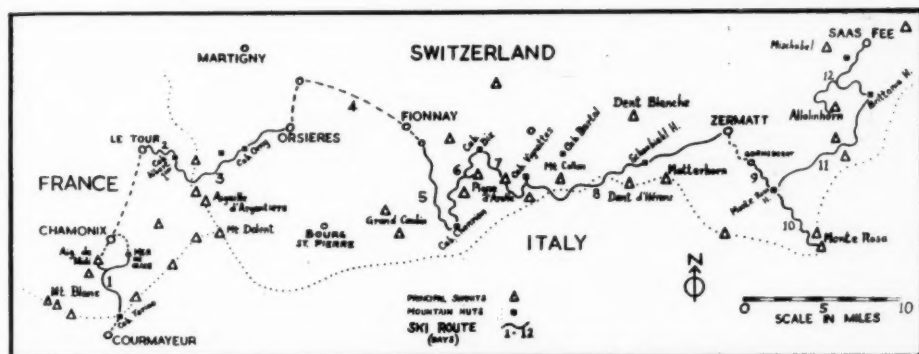
(Senior Registrar)

A traverse of the glaciers between Chamonix and Zermatt has been a classical mountaineering route since members of the Alpine Club pioneered the crossing in 1863. Needless to say, the earliest traverses were made on foot in summer, but the route is an ideal one for alpine skiing, crossing about a dozen passes between 10,000 and 12,500 feet in some of the most spectacular scenery in the whole Alps. The French and Swiss alpine clubs have now built several huts in which one can find shelter or sleep, and the main difficulties of completing the whole route are the unpredictable weather in the high mountains and the weight of provisions which have to be carried.

We made our first attempt in the spring of 1958 with a party of four in which Bart's was well represented by Adrian Griffith and Hugh Bower. Soon after leaving Zermatt we ran into bad weather and spent two exceedingly cold nights, imprisoned in the Bertol

hut; when the blizzard at last stopped, we skied down to Arolla and abandoned the route. This year, however, perhaps chastened or challenged by our previous defeat and helped by better weather, Bower was successful in getting through in March and we came over in late May. There were three of us in the party, an ideal size for this type of venture, and with two doctors and a bassoonist (without bassoon) we had hopes of being able to cope with almost any contingency!

The first few nights were spent in the Torino hut above Courmayeur, trying to get up our strength by skiing down to Chamonix each day and returning in the evening by the Aiguille du Midi téléphérique. It was on one of these practice runs one morning, that I managed to fall over whilst coming down through the seracs of the Glacier du Géant. Fortunately I ended up by sliding across the top of an open crevasse and not into it, but it was a near thing and seemed a sobering



Sketch Map of the High Level Route, 1959

The Sections shown as a series of dashes were bus or train and the numbers show successive days

moment. Nevertheless the only remark of a German skier who was coming after me was: "Ein Herr hatte heir falste im Spalten gefallen" (a chap here has almost fallen down a crevasse), before he and his companion departed down the glacier with true Teutonic phlegm, leaving me to extricate myself. Despite this and similar excitements, a few days later we set off on the high level route, the ski piled on top of our bulging rucksacks looking somewhat incongruous as we trudged up through the flower-scattered pastures of the Chamonix valley, with not a patch of snow in sight. We soon began to wonder, as the heat of the sun gradually increased, whether the atomic age had removed the alpine snows and that we were committed to a holiday of endless clambering over relentless rock and scree, bent under about forty pounds of food and equipment. But late that evening we found the snow, when we reached the Cabane Albert Premier, our first hut; and most of the route we followed later was on well-covered glaciers, above the summer snow-line.

Most days we were up and away by 4 a.m., to finish the main glacier crossings before the heat of the sun had softened the frozen snow, making progress difficult and the snow bridges over the crevasses unsafe. If we did not get badly lost, we usually arrived at the next hut in the early part of the afternoon, leaving ample time for sleep, repairing equipment and for the detailed planning of next day's route. Most climbing was with skins under the ski, but on particularly steep or awkward slopes, the ski had to be carried on the rucksacks. Ice axes were also strapped

on our packs, where they were least likely to injure the owner during the inevitable falls, but were still accessible when needed. A practical detail is that we used fairly short, pliable skis and avoided any type of "release binding", since these are quite unsuitable for this sort of skiing.

Although the glaciers of the high route are very crevassed, we made all our descents without the rope. Whatever the theoretical advantages of skiing roped, we have never been able to manage this without the last man being cracked like a whip every time the leader makes a turn. After careful reconnoitring, provided each skier follows closely the track left by the first man, an unroped descent is moderately safe as long as snow conditions and visibility are good; most experienced parties use this technique. Our worst weather came when we were at a comparatively low altitude, walking up the gloomy Val de Bagnes towards the Chanrion hut. Part of this valley is filled by an enormous hydro-electric barrage, and the new footpath passes through a long series of galleries which have been cut high up in the cliffs above the artificial lake. As we entered this tunnel we passed a solitary road-mender, who shook his head doubtfully when we told him we were making for the head of the valley. He warned us that we might be bombarded with "cailloux" from the cliffs above, as our path finally emerged from the galleries. We were not at all sure of the translation of this sinister-sounding word and our misgivings increased when we began to negotiate the galleries, which were almost dark in some places; in others we had to crawl on all

fours between the dripping roof of the tunnel and piles of frozen snow which had blown in during the winter. However, we eventually emerged from inside the mountain into the rain and the road man was right in that the track was littered with recently fallen rocks and boulders. Although none of these "caillieux" was much bigger than a Morris minor, we felt that this was

them empty so that there would be plenty of blankets to spare at night; it also meant that we were unlikely to be disturbed, whilst cooking our long awaited evening meal on the wood stove.

Next day we left Chanrion in brilliant weather and crossed two steep passes to the next valley, dumping our packs for a few hours to go up Mont Blanc de Cheilon. We



The Aiguilles Rouges d'Arolla

not the time or place for resting. For the next half hour we covered the ground as quickly as possible, wondering between anxious upward glances whether the whistle would be heard before the rock hit us, or whether it might be the other way round!

The Chanrion hut lies close to the Italian frontier in a desolate and forsaken valley, so that it has the reputation of being used more often by smugglers of tobacco than climbers. But we had the place to ourselves. The high level terrain is so vast that although we met a few other parties during our travels, this was unusual, and on several days the only creatures we saw on the glaciers were occasional ravens and alpine choughs. The huts are exceedingly cold early in the year at these great heights and we generally hoped to find

did not climb beyond the south peak, because of a shaky-looking cornice on the ridge to the higher summit and skied down to the Cabane des Dix. We pushed open the door to find signs of recent feasting, because we had disturbed the solitude of three wealthy and very genial Swiss. They had brought with them enough food and drink to combat their austere surroundings for a week of alpine skiing. But what interested us more was that they had enlisted the skill of Herr Geiger, who had flown each of them in turn from Sion in the Rhone Valley, landing his little Piper Cub aircraft on the glacier near the hut. Having spent five days carrying our humps over the mountains, we must have seemed to these more enterprising Swiss like dejected, two-legged alpine dromedaries.

Pigne d'Arolla is one of the few high mountains whose summit can be reached in the spring, without taking off the ski for the final climb. It is approached from Dix by climbing two steep glaciers distinguished by the names of Tsena Réfien and Tsidjiore Nouve, so that we may be forgiven for spending an extra hour putting in some practice near the summit, with a splendid view at our feet over the snow peaks of three countries. This led to a late start down the glaciers on the opposite side, by which time the clouds had come down. We were soon completely lost and paid the penalty for dallying by an anxious descent, having to make frequent use of the pocket altimeter, the compass and the map before we eventually found the Cabane des Vignettes. Our past troubles were forgotten a little later, because the clouds suddenly cleared and the hut is in an unequalled situation, high above the Arolla valley. This region, the centre of the high level route, is probably the finest in the Alps. There is a wonderful remoteness in its vast glaciers and the high peaks have a classical symmetry almost like those in a children's picture book and contrasting with the rocky spires of the Chamonix massif. Should one be forced down into the Arolla valley by bad weather, the women are to be seen working in the fields in a picturesque costume and the roofs of the chalets are of shingles, a pleasant change from the corrugated sheeting which despoils so many Swiss villages. It is difficult for a visitor to forget an evening over a bowl of "fondue", a traditional celebration of these valleys, concocted of melted cheese with wine and spice. After washing down some pounds of this mixture with the local wine, it is rare indeed for a group of climbers to be in fit condition to walk up to their hut next day. Because of a previous experience of this sort, we stayed up in the Vignettes hut to prepare for the next stage, the long traverse to the Schonbiehlutte and Zermatt. It promised to be the most difficult passage, since none of us had been over the terrain before and the route passed over three very high passes, the Cols de l'Evêque, Mont Brulé and Valpelline, before reaching the top of the lengthy descent on the Zermatt side. Once fairly embarked on these glaciers, it would be difficult to escape if the weather suddenly changed, and the sentence in the guide book: "C'est une étape excessivement longue, qui ne doit être pas tentée sauf les conditions absolument sûres" seemed anything but reassuring. We munched our risotto in silence, but

next morning with a 3 a.m. start were lucky to find excellent snow and weather and we made good progress. It was a day to remember. Starting out by starlight from the hut, we skied slowly across the silent desert of the glacier, passing close under the steep ice of Petit Mont Collon. Finally, fumbling with our frozen bindings on the Col de l'Evêque, the pink sunrise began to creep down the rocks high above us, turning the cold shadow of the night into brilliant, sparkling light. We crossed over to the Italian side of the range, then back into Switzerland and again to the Italian side before reaching the Col de Valpelline, but the magnificence of the surroundings made us forget the discomforts of the long traverse and in a few more hours we were swishing down the Stockjigletscher, watched by the great north faces of the Dent d'Hérens and the Matterhorn. The snow ended as we came off the tongue of the glacier and we had to carry our ski and begin a long clamber over the hot, dusty boulders of the moraine. Each of us had started the day wearing two heavy wool sweaters, thick shirts, string vests and anoraks but by the time we trudged into Zermatt in the afternoon, our rucksacks were festooned with these clothes.

In Zermatt one of the party had to leave: my cousin, Bryan-Brown, hurried off to catch a train towards the start of the week and a new house-job. My brother and I had much-needed baths and washed and dried our (only) shirts from the hotel window. After the luxury of a bed with sheets, we were soon off on the rack railway to the Gornergrat and walking over to the Monte Rosa hut. From this base we climbed Signalkuppe, one of the Monte Rosa summits; this is the second highest mountain in the Alps, but we had little inclination to admire the view. Our damp boots had frozen solid and a bitterly cold wind made us hurry off the summit rocks. We then had a wonderful run down the Monte Rosa glaciers, which brought us whooping and yodelling from an altitude of a few feet under 15,000 to the hut at 10,800. An inch of powder snow over a frozen base makes the most splendid of ski descents.

The final lap to the Britanniahutte was another long day. We had some trouble with the snow bridges on the Findelen glacier and when we finally got over the Adler Pass we were in thick cloud and it was snowing. This made the descent on the Saas side very unpleasant and the visibility became so poor

that we felt as if we were skiing with pillow-cases over our heads. Neither of us had seen the glacier before and we had to rely again on the map to find a route between the ice-falls, where the glacier, dropping more steeply, became broken into enormous cliffs of blue ice. However, we consoled ourselves with the knowledge that the Swiss "Carte nationale 1:50,000" is a production of out-

standing accuracy, so that if we fell into a crevasse, the fault would be ours and not that of these most beautiful of maps.

On the last day, the two of us climbed Allalinhorn (13,200 ft.) and basked for an hour on a windless summit before skiing down to Saas Fee. We could see, amongst the receding ranges of rock, snow and ice, (concluded on p. 249)

LETTERS TO THE EDITOR

Dear Sir,

What is in a name? This was the title of a newspaper article a few weeks ago—no doubt, as Editor, this question has also passed through your mind.

The strange notions that may be conjured up by the name Cholmondley or Nuffield; Brown or Smith, are perhaps of opulence or benevolence; humbleness or simplicity. These are just examples of a peculiar trait in human beings to prejudge a neighbour's character by their name.

What is in the name? I will take this opportunity to say that there is, in the name of Jesus, the solution to the world's problems at large and those of each individual.

Details are being given to each student concerning the L.I.F.C.U. triennial Mission, which is supported by our Hospital Christian Union. Dr. Martin Lloyd-Jones will be giving the main addresses at All Soul's, Langham Place, from November 10th-17th.

I would ask those who have never considered the use of the name Jesus Christ in any but a swearing capacity to go and hear it being used correctly as a means of help and love; to those who already know this—please go along and help the many who are not so lucky.

That there is a lot in the name of Jesus is an understatement—this might be your last, or first, chance. Christianity is not easy but it is worthy of your serious consideration.

Yours sincerely,

B. J. STOODLEY,
President, Christian Union.

Dear Sir,

I read with interest your Editorial on the problem of euthanasia applied to hopeless children. It seems, however, that you have omitted one aspect which is a very real problem: that is, what constitutes a human life? Whilst I fully agree with the sanctity of human life, and with the moral obligations resulting from such a principle, yet it seems to me that the main problem is finding criteria from which to assess the nature of the creature in question.

Some of these children, from the moment they are born until their death, show no signs of those faculties by which one differentiates man, with his immortal soul and superior intelligence, from other forms of life. Incapable of moving about, totally unaware of their surroundings (or in some cases, aware, but uncomprehending), they are cared for throughout life, by dedicated people performing thankless work. No one could deny the heart-rending character of this work, but perhaps one

would have to have tried it, to fully understand the perplexing nature of the problem as to whether these creatures are human or not; of whether this is really dedicated service to the less fortunate children (and their parents), or whether it is a total waste of time, energy and money, caring for creatures of apparently less value than domestic animal or family pet.

There are problems for the bacteriologists and virologists in distinguishing between "living" and "non-living"; but there are even more momentous problems for the clinician in deciding between "human" and "non-human". Where does one draw the line?

Yours sincerely,

"PERPLEXED"
St. Bartholomew's Hospital Medical College.

Dear Sir,

I fully agree with the ideas put forward in your July Editorial. However, I should like to add something on one of the points to which you referred briefly. The value of life to oneself and to the community is, as you suggest, sufficiently sacred to most sane people to prevent the taking of life for any purpose.

It is only when this usefulness is lost for ever (or, in the case of these children which you instanced, appears never to have been present), that it occurs to people to dispose of such beings. But surely the main reason for this is not only one of convenience, though I think the burden which such helpless people place on their relatives and the community is often considered as much as the suffering of the victim, when there is talk of enthanasia. More likely is it that people in this materialist world are deaf to the teachings of the Christian Church. From Divine Revelation we learn that the function of our life on earth is to love and serve God, thus fulfilling one of the main purposes of our creation. Who are we to assume to judge whether or not a soul, even in the most deformed and deficient of bodies, is capable of knowing and loving God, even if active service (in the human sense) appears impossible? It can surely never be wrong for the doctor to prolong human life, but it may well be wrong for him to take it. As long as there is any doubt (and since we as humans cannot know God's purposes, there will always be doubt), life must be held sacred. To cut short a life on earth (the time given by God to man to work out his salvation) is thus a crime for which we should have to answer before the Creator of that life and of our own.

Yours sincerely,

E. KNIGHT.

BOOK REVIEWS

RADIOISOTOPE TECHNIQUES IN CLINICAL RESEARCH AND DIAGNOSIS, by N. Veall and H. Vetter Butterworth & Co. Ltd., London. P. xii and 417. Price 50s.

This book is intended primarily for the clinical worker, who is concerned with the management of patients, and who is interested in using radio-isotope methods either as a diagnostic or a research tool. The first half of the book is concerned mainly with the fundamental physics of radio-activity and the methods of measurement of ionising radiations. A simple account is given of the various types of radiation detectors and the associated electronic equipment; this leads on to details of various radioactive-measuring techniques. There is a useful chapter on radiation hazards, which gives a general background of the subject, and then proceeds to practical suggestions about handling of radioactive isotopes and the protection of staff. The question of radiation dosimetry is dealt with briefly.

The second half of the book deals mainly with various clinical applications, each chapter dealing with one particular problem in detail: the techniques developed, the interpretation of results, and the possible sources of error. These chapters give a good idea of the diversity of problems which have been investigated using radio-isotopes. They should serve as a useful guide on established techniques, and stimulate ideas on fresh fields of exploration.

For the sake of completeness there is a chapter on Isotope Therapy, which in the space of ten pages, gives a brief outline of the subject.

This is a book which is easily read, and which gives a comprehensive, and simple, account of the subject. The use of mathematics has been kept to a minimum, and the subject matter can be followed even if the mathematics are not understood. The bibliography, while not exhaustive, is good. Clinical workers should find this book a helpful guide to the use of radioactive isotopes, even those with little knowledge of physics should find it encouraging. It provides a good introduction to the subject for medical students, who may read it without bothering too much about the detail. Even those who are already in this field may find something of value in the second half of this book.

J. McAlister.

A CONCISE TEXTBOOK FOR MIDWIVES by Douglas G. Wilson Clyne. Publishers: Faber & Faber Ltd. Price 32s. 6d.

Mr. Wilson Clyne's book does in part accomplish its stated purpose, for it gives insight into the type of question asked in the examinations of the Central Midwives Board and shows how they may be answered. It is concise in presentation and would serve well as a book from which to revise, but one would hesitate to recommend it as a textbook for sole study; and it is certainly unsuitable for reference or wider reading, while its price limits its use as an adjunct. The form is essentially question and answer and therefore the text is inevitably somewhat disjointed and not always self explanatory.

The anatomical section is brief and no space is given at all to the development and embedding of the ovum or to placental development, although on page 102 both the decidua vera and decidua capsularis are mentioned with no explanation at all, and the anatomy of the Fallopian tube appears much later in connection with bleeding in pregnancy. The section devoted to labour is the best; the diagrams are clear and the mechanism well presented and simple, although one is left wondering if right occipito-anterior and left occipito-posterior positions of the vertex do ever occur. Lövssets' manoeuvre is worthy of inclusion but the description is too brief to be of real value. Antenatal care is well described, but the reasons for history taking not elucidated. The puerperal care is rather brief and "the midwife scrubs up for the usual 7 minutes" (page 207), for perineal toilet, is unrealistic. Section V on The Infant is devoted mainly to the recognition of the abnormal, and in many instances the rare conditions precede the common ones. More practical details of simple nursing care of the full term and premature infant could have been given with benefit.

Diagrams are clear and pleasing with the exception of those on page 234 (Foetal Abnormalities), which are rather distasteful and exaggerated. Some are not well linked with the explanatory text such as those showing manoeuvres used in abdominal palpitation (page 75) where no explanation is offered and the discomfort of Pawlik's grip not pointed out.

The whole is a little pedantic and conservative, particularly in terminology, older classifications of placenta praevia and pituitary hormones being used. Nevertheless this book will certainly be welcomed by many pupil midwives as a quick and easy means of revision and a way of accustoming themselves to the type of question they may encounter.

Miss R. E. Bailey,
Midwife Teacher's Diploma

ELEMENTARY MEDICAL THERAPEUTICS

by G. F. Walker. Published by John Wright & Sons, p. 69. Price 7s. 6d.

This book is based on the principle that it is better to know a few drugs well than a large number vaguely. Designed for use by senior students and housemen, it sets out under simple headings such as "Analgesics", "Diuretics", "Muscle Relaxants", etc., a selection of the most useful drugs and preparations available.

POCKET BOOK OF PROPRIETARY DRUGS

by Cruikshank and Stewart. Published by E. & S. Livingstone, p. 236. Price 10s. 6d.

This slim volume, which fits readily into the pocket, sets out the names, manufacturers, compositions, indications, packs and dosages of some fifteen hundred drugs, ranged in alphabetical order. For those who know the name of a preparation and require such additional information this is undoubtedly a useful book.

THE LIFE AND WORKS OF JOHN SNOW

The Wix Prize Essay, 1959

by M. T. BARTON

PART I: EARLY YEARS AND THE EPIDEMIOLOGY OF CHOLERA

It is the fate of many great men to be neglected by their fellows, only to receive praise and recognition from succeeding generations. The name of John Snow is respected to this day, a century after his death, because of the greatness of his work in two quite distinct fields of medical science. His classical researches into the epidemiology of cholera earned him the respect of his associates, but the general medical opinion of his day called his work "Dr. Snow's Theory" and considered it no more probable than many of the vast body of conflicting views that represented the teaching on that terrible disease. It was left to posterity to recognise that his was a model of scientific inquiry that has the permanence of a masterpiece.

If he was neglected for his work on cholera, he won the unstinted admiration of his contemporaries for his ability and teaching in the field of anaesthesia. Entering on it when it was but in its infancy, he made the subject his own. He found it in the hands of empiricism and by his example and his researches he left it an exact science. He was founder of the tradition of English anaesthesia, a practice that now stands so high in the world.

He was a man of the highest integrity, of unending determination and unbending conviction, when this conviction was founded on facts. His work was painstaking, meticulous and as exact as he could make it, yet he had a mind great enough to cleave through the welter of detail and arrive at great conclusions. In his life he deserves our admiration for his struggle against adversity. In his work he deserves nothing but praise.

The early years

John Snow was born on 15th March 1813, the eldest of the seven children of William Snow, farmer and carter, who lived near York. During his first twenty years, Snow gave many signs of that singleness of purpose which was to characterise his attitude to life. He showed ability during his school-

ing and after what was probably a stern childhood, he began his medical career at the age of fourteen, apprenticed to a surgeon in Newcastle. Whilst at Newcastle, where he was one of the first pupils of the new Medical School, he became a rigid vegetarian and a firm believer in total abstinence. A vegetarian he remained for eight years and only at the end of his life did he relax his rule about alcohol. To any patient whom Snow thought was not ill, he gave a blunt opinion and sent him packing, to the chagrin of the surgeon who saw many a paying patient disappear under Snow's determined treatment. During this time Snow first saw cholera in all its grim reality, when he treated the miners of Killingworth Colliery during the epidemic of 1832.

When, after nine years in the north as assistant to various surgeons, Snow set out for London, he chose to walk, visiting Liverpool, Wales and Bath before he finally reached London in October 1836.

He enrolled at the Hunterian School of Medicine in Great Windmill Street and a year later began clinical medicine at the Westminster Hospital. He qualified M.R.C.S. and Licentiate of the Apothecaries Society in 1838 and set up as a practitioner in Soho. The following years were probably hard ones for the young surgeon, but he attended the outpatients department of Charing Cross Hospital and continued to read widely in the subject of medicine. He went on to higher qualifications, passing the London M.B. in 1843, and in the next year he was placed in the First Division of the London M.D.

Despite the difficulties he encountered in earning a living, Snow was content to remain in London as long as he had an outlet for the results of his experiments and investigations. This he found in the Westminster Medical Society, which he joined as a student in 1837. Gradually he came to receive a hearing from the Society and soon it was obvious that Snow's interest was principally directed to the respiratory system and the effects of drugs and poisons that affected the

body via that system. He reported the results he obtained in experiments on the inhalation of carbon dioxide, and entered into discussion on emphysema, asphyxia and the physiology of respiration in the newborn and in cases of chest deformity.

The vivid impression that he must have gained of cholera at Newcastle and his knowledge and interest in the physiology of respiration were the necessary stimuli that led to his two great contributions to medical science. John Snow had the ability, determination and greatness of mind to apply the lessons of his early years to the problems that arose in his maturity with the discovery of anaesthesia and the revisitation of cholera to this country.

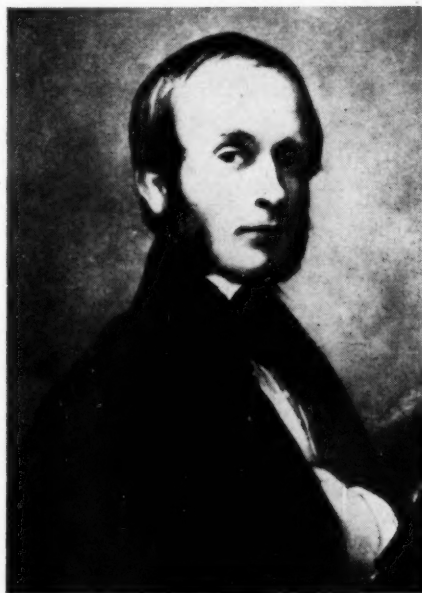
Cholera

John Snow's experiences among the miners of Killingworth in the cholera epidemic of 1832 must have left a deep impression on his mind. He was (when not yet 19), sent out to treat a disease of startling rapidity and high mortality with a pack of empirical remedies and common sense. Richardson says "in this labour he was indefatigable and his exertions were crowned with great success." Newcastle had the third highest mortality of any town in the country: the epidemic ran for a month resulting in 801 deaths and in the neighbouring colliery villages there were over 250 dead. The legacy of this terrible month may well have been to leave with Snow a determination to discover the real cause of the disease.

In the following years Snow came to London and gained his medical qualifications, building up a general medical practice and, with the discovery of anaesthesia, vigorously developing his knowledge and understanding of the actions and administration of anaesthetics. It was 16 years after Snow's Killingworth days that cholera broke out again. Having made its ominous way across Europe cholera came to England in the autumn of 1848 and in the summer of 1849 it raged throughout the country, causing 53,000 deaths in England and Wales and over 14,000 deaths in London. During the epidemic the *Lancet* published a spate of letters announcing innumerable cures for and causes for cholera. One cynical writer capped them all by collecting the remedies advocated, fifty in all, ranging from cayenne pepper, croton oil and chloroform to the

reeking skin of a fresh slaughtered sheep.

Despite his being absorbed in anaesthesia Snow turned his mind to cholera. Already he was mentioning his theories by the autumn of 1848 to recognized authorities on cholera and whilst the epidemic lasted he collected evidence to support his views. In August 1849 he published '*On the Mode of Communication of Cholera*' a pamphlet of 31 pages. Snow claimed that cholera was a communicable disease affecting the alimentary system and the general symptoms were all attributable to the loss of fluid in the body. The cholera poison was to be found in the vomit and excreta of infected persons, and, as well as by personal contact and the eating of contaminated uncooked food, Snow considered that cholera was spread by the emptying of sewers into the drinking water of the community. Infection was by swallowing the poison which probably consisted of "organised particles" not capable of indefinite division. He stated his opinions: "Not as matters of certainty, but as containing a greater amount of probability in their favour than any other in the present state of our knowledge." Snow supports his conclusions by quoting, among others, cases of personal



JOHN SNOW AS A YOUNG MAN
(reproduced by kind permission of Miss Una Snow)

infection and a limited but very fatal outbreak in a terrace of houses in Wandsworth. Here all the evidence pointed to the water supply being the agent of infection. Snow realized at the time that his researches were supported by insufficient evidence. He concludes "It would have been more satisfying to the author to have given the subject a

'typhus' was contagious and in 1839 he disagreed with the 'malaria' theory that the products of animal decomposition caused ague. The question of contagion had secured as many opponents as supporters, and its history is beset with controversies. Ignorant of the actual causes, doctors did not know which way to turn in the light of conflicting



MINERS COTTAGES AT KILLINGWORTH

(reproduced by kind permission of Mr. S. P. W. Chave)

more extensive examination and only to have published his opinions in case he could bring forward such mass of evidence in their support as would have commanded ready and almost universal assent; but being pre-occupied with another subject (i.e. anaesthesia) he could only either leave the enquiry or bring it forward in its present state and he has considered it his duty to adopt the latter course . . ."

Our knowledge of Snow's early views on the transmission of disease is limited. Current theories mostly favoured the idea of effluvia emanating from the sick and the effects of damp atmosphere or obnoxious smells. The causes of a disease were divided into predisposing and exciting. Predisposing causes of cholera might be the place you lived in, exciting causes the state of the weather. By 1838 Snow saw reason to believe

evidence. Frascaturio in 1546 and Kircher in 1658 had suggested the basis of contagion and the existence of micro-organisms. Sydenham in the latter part of the 17th century wrote of pestilential particles and infection from carriers, but obscured the idea with theories of miasma, disturbances of the humours and climate and atmospheric influences. Webster in 1799 cites many cases against the theory of contagion. In 1840 Henle suggested a germ theory of contagion. Thus, though the works of Hunter and Jenner show that there is a communicable poison, the extreme diversity of opinion, and the often inexplicable circumstances surrounding cases of disease, only served to confuse the issue. And in the living conditions of the day there was so much that supported the 'malaria' theory. In 1842 the Report on the Sanitary Conditions of the

Labouring population of Great Britain gave examples of the most frightful squalor: in Inverness there were very few houses with a W.C. or privy and only 2 or 3 public privies for the great bulk of inhabitants: in London the night soil overflowed from cesspools to a depth of three feet in two houses. In Manchester there was so much rubbish and mud in the streets that the ambulances could not get to the houses to take the sick away: in Glasgow here were dung heaps behind the tenements instead of lavatories and the excrement was a profitable source of manure. A revealing *cri du coeur* was published by "The Times" in 1849:

The Editor of The Times Paper.

Sur,

May we beg and beseach your proteckshion and power, We are Sur, as it may be, livin in a Willderniss, so far as the rest of London knows anything of us, or as the rich and great people care about. We live in muck and filthe. We aint got no privez, no dust bins, no drains, no water-splies, and no drain or suer in the hole place. The Suer Company, in Greek St., Soho Square, all great, rich and powerfool men, take no notice watsomedever of our cumplaints. The Stenche of a Gully-hole is disgustin. We all of us suffer, and numbers are ill, and if the Colera comes Lord help us.

Some gentlemans comed yesterday, and we thought they was comishoners from the Suer Company, but they was complaining of the noosance and stenche our lanes and corts was to them in New Oxforde Street. They was much surprized to see the seller in No. 12, Carrier St., in our lane, where a child was dyin from fever, and would not believe that Sixty persons sleep in it every night. This here seller you couldent swing a cat in, and the rent is five shilling a week; but theare are greate many sich deare sellars. Sur, we hope you will let us have our complaints put into your hinfluenshall paper, and make these landlords of our houses and these comishoners (the friends we spose of the landlords) make our houses decent for Chriestions to live in.

Preaye Sir com and see us, for we are livin like piggs, and it aint faire we shoulde be so ill treted.

We are your respectfoul servents in Church Lane, Carrier St., and the other corts. Teusday, July 3, 1849.

The drawback to the acceptance of the contagion theory was the effectiveness of general sanitation measures in cutting down disease. Chadwick, one of the great sanitarians of the century showed that drainage and sanitary improvements stopped an epidemic of dysentery in Cork and generally reduced the incidence of disease. The care of public health proceeded under the banner of sanitary reform. Conditions were so bad that people could not visualise anything so theoretical as contagious organisms. It was in fact the right cure, but the cause was not accepted.

The effect of Snow's tract on Cholera was minimal. He had 125 copies printed at his own expense, of which only 30 copies were sold, at a shilling each. The *Lancet* commented that "the arguments adduced by the author against emanations causing the disease are by no means conclusive" and "Dr. Snow's exclusive views must be received with great limitation". In the report on the Epidemic Cholera of 1848-49 by the General Board of Health no mention is made of Snow's views and the blame for the epidemic is laid on atmospheric pollution aggravated by the poor sanitary conditions. In 1848 the Metropolitan Sanitary Commission considers that specific contagion is harmful only when concentrated in confined spaces: that "when Cholera first appeared in this country the general belief was that the disease spreads principally if not entirely by communication of the infected with the healthy. The General Board of Health report of 1850 states "the late extended experiences has shed no light on the primary or proximate causes of this pestilence".

In 1852 the Registrar General published a report on the cholera epidemic in which Snow's views are discussed with the opinion that the facts "lend some countenance to Dr. Snow's theory".

In 1854 Dr. Baly and Dr. Gull wrote a report for the Royal College of Physicians. Snow's theory is rejected—"the theory as a whole is untenable" and the miasma theory is upheld.

Snow was not content to let his theories be propagated solely by his pamphlet and in 1849 the London Medical Gazette and the Medical Times of November 1851 published his views. Subsequently Snow was elected Orator of the Medical Society of London, with which the Westminster Society had joined in 1849, and his oration, delivered in

March 1853, deals mainly with his reasons for considering cholera among others a communicable disease. He infers that the communicable cause of disease "resembles a species of living being", despite the fact that we cannot see it, from the manner of its growth and reproduction, and he brings forward evidence and reasons against the rival theories of the day. The Society were so impressed that the oration was published "by request of the society". Again he wrote an article for the *Medical Times*, published in October 1853 and in February the next year he presented to the Epidemiological Society a rational mode of treatment of Cholera based on his views on the communication and pathology of the disease. When Cholera again broke out in England in the summer of 1854 Snow had given the medical profession ample opportunity to pay heed to his opinions.

The Epidemic of 1854-55

Snow's theory by this time lacked only that mass of evidence necessary to support it. This epidemic supplied it in horrible abundance, as a result of which Snow published in November 1855 a second edition of his pamphlet 'much enlarged'. It was in fact a clearly reasoned book that presented a great number of cases illustrating the communication of cholera on small and large scale. Well marshalled facts drive home his theories and his arguments refute the conflicting theories of the day. Snow states the pathology of the disease and reasons that "the morbid matter of cholera having the property of reproducing its own kind, must necessarily have some sort of structure, most likely that of a cell". It was not until 1863 that Pasteur's work established the connexion of micro-organisms and disease. Snow lays down principles of personal and public hygiene that are essential in the prevention of the spread of disease. The outstanding ability of Snow is however shown in the conduct of his researches and the evaluation of the facts in two centres of the epidemic. One was a strictly localised outbreak of devastating severity, centred on the Broad Street pump near Golden Square, Soho. The other was "an experiment on the grandest scale" in the parts of London South of the Thames. Here the inhabitants received water from two different companies, one of which supplied relatively pure water and the other water grossly contaminated with Lon-

don sewage. Snow uses the statistics of cholera mortality in these districts to provide the most convincing proof of his theory.

The Broad Street Pump

Snow had already started his researches in South London when a disastrous outbreak of cholera occurred in Soho. Broad Street was the centre of an area partly residential and partly commercial. There were the houses of middle class tradesmen and houses of a much poorer sort: a workhouse with five hundred inmates, a percussion cap fac-



BROAD STREET,
MID-NINETEENTH CENTURY
(reproduced by kind permission of
Mr. S. P. W. Chave)

tory employing 200 people and a brewery employing 70; there were shops, coffee houses, public houses and many small workshops in the area. As soon as Snow heard of the outbreak he suspected the pump in Broad Street: this was a popular pump sup-

plying many in the area and preferred by some to a nearer water supply. It was used in the eating houses in the neighbourhood, and a tub of it was kept for the workmen in the factory. There was a piped supply from the Grand Junction and New River companies but this was intermittent, being turned on for only a few hours each day. Householders had to store it in tubs open very often to the weather, never cleaned out and in the hot summer this supply must have been unpleasant compared with the pump water.

During the last few days of August 1854 there were one or two deaths occurring each day in the area. Suddenly the mortality shot up: on Sept. 1st, 70 people died; 127 died the next day and over 300 in the following week. As soon as he heard of the outbreak Snow suspected the pump. From his knowledge of cholera Snow worked out the date of the probable infection of the well and personally investigated the 83 deaths in the area registered since that date. In only fourteen cases did his researches not definitely incriminate the pump. That, and the extreme severity of the outbreak in such a limited area was enough to convince Snow that action must be taken to close the pump. In the evening of the 7th September Snow explained his reasons to the Board of Guardians of the parish and the next day the pump handle was removed. It was an action of such beautiful simplicity that it would be satisfying to record that the epidemic came to a dramatic close. But in fact the cholera mortality had declined with as much rapidity as it had at first risen. The population had deserted the area and of course the cholera *vibrio* does not have an indefinite life in water. Snow himself does not make any claim for proof resulting from his initiative, but the simplicity of his action has seized the imagination of subsequent writers, including Richardson, who attribute the ending of the outbreak to the removal of the pump handle. The greatness of Snow's work lies in his investigation, not in the prevention of any one outbreak. His work in connection with the Broad Street pump continued with the collection of supporting evidence all pointing to the source of infection being the pump. Perhaps the most striking case is that of the lady living in Hampstead who had Broad Street water sent out to her every day. She and a niece who was visiting her drank the

water. The lady died from cholera and the niece returned to her home in Islington, was attacked with cholera and also died. Neither at Hampstead nor at Islington was there any cholera at the time.

Snow prepared a map showing the places of residence of all those who died from cholera, including those of the sick who were removed to the Middlesex hospital where Florence Nightingale was working. The black marks cluster incriminatingly around the Broad Street pump.

Following the outbreak a local Committee of Enquiry was set up on to which Snow was co-opted. After Sir Benjamin Hall, the president of the General Board of Health, had refused his help, the Committee circulated a questionnaire, with little success. Then, following Snow's methods, the interviewing team undertook a house to house visit, armed with a list of twenty four questions, drawn up by Snow and Dr. Lankester, the Chairman. This had a better result, and the committee prepared and published a report of the outbreak. Snow submitted an individual report that followed the lines of his previous investigations. One of the interviewers was a Rev. H. Whitehead who also submitted an individual report. Whitehead was the curate of a neighbouring church, who showed much courage and initiative in the cholera epidemic in London. He was at first sceptical of Snow's theory and wrote to him to tell him so. He instituted his own enquiry in Broad Street itself and found the evidence so conclusive that he did not hesitate to confirm Snow's results.

Snow had had the pump opened at the time of the outbreak but could find no definite proof of a source of contamination. Whitehead, whilst going through the Registrar General's returns stumbled on the case which gave rise to the epidemic. Two days before the violent outbreak an infant was attacked with choleraic diarrhoea in No. 40 Broad Street: she died four days later. Whitehead found that the mother washed the nappies and tipped the water into a cesspool which lay within feet of the pump well. Again the well was opened and this time there was clear evidence of the contamination of the water through defective brickwork.

An Experiment on the Grandest Scale

During the epidemics of 1831-32 and 1848-49 the poor crowded areas south of the Thames suffered the highest mortality in London. The companies responsible for the water supply throughout most of south London were the Southwark and Vauxhall and the Lambeth Water Works. These companies drew their water from the Thames in the heart of London, which was grossly contaminated with the sewage and refuse of the metropolis. They shared the dubious distinction of supplying the most polluted water, and to the areas worst hit by cholera. In the growing tide of Sanitary reform after the 1849 epidemic Parliament required the water companies of London to remove their intakes above the tidal reaches of the Thames, but by 1854 supplying much purer water from Thames Ditton.

It was a magnificent opportunity for Snow. During the preliminary outbreak of cholera in 1853, the effect of the purer water supply on the cholera mortality began to be apparent to his watchful eye. He then had only to find out the water supply to those houses in which a death took place, to produce the most conclusive evidence. But more important than that, Snow found out that in the districts of Southwark and Lambeth, the water supply to individual houses was arranged on the most haphazard basis. The mains of the two companies ran down each street, supplying the houses of rich and poor alike, some by one company, some by the other according to the whim of the owner or occupier at the time when the two companies were competing for customers.

"No fewer than 300,000 people of both sexes, of every age and occupation, and of every rank and station, from gentlefolk down to the very poor, were divided into two groups without their choice, and, in most cases, without their knowledge: one group being supplied with water containing the sewage of London, and, amongst it, whatever might have come from the cholera patients, the other group having water quite free from such impurity".

It was ideal material for the application of statistical methods and Snow showed himself to be decades ahead of his time in his application of it. Having obtained the addresses of each person dying from cholera in the area, he began a laborious house to house visitation, enquiring the water supply

of each place where a cholera death had taken place. In many cases the occupants could not tell him, but he found that the salt content of the Southwark and Vauxhall water from the tidal reaches was so much greater than the purer water from Thames Ditton that it gave him a simple and accurate means of distinguishing the supply. Snow continued his enquiries into those areas supplied by either water company, alone, in order to obtain a comparison with the districts where the supply was from both. The task was so great that he paid for the assistance of a qualified medical man to help him. During a four week period at the beginning of the epidemic they investigated 334 deaths from cholera. The result of this first four week period showed that the Southwark and Vauxhall Company supplied houses with a mortality of 71 per 10,000 houses whilst the Lambeth supplied houses with a mere 5 per 10,000 mortality. Later, at Snow's instigation, the district Registrars were requested to include in their returns, the water supply of each house in which an attack of cholera took place, and Snow carried his enquiries down to the date on which this requirement became effective. In all, he himself investigated over 650 deaths, during the first seven weeks of the epidemic. As the epidemic progressed the disparity of the two mortality rates decreased, which Snow attributed to the many other modes of transmission having their effect. But from his own and the Registrar General's figures Snow was able to show that in a 14 week period the mortality of the population supplied by the Lambeth Company was still only one-sixth of that supplied by the Southwark and Vauxhall Company.

Snow continued his book by examining the effect of other water supplies in London and the larger towns in England. He considered and produced evidence against most of the conflicting theories of the day regarding cholera, and extended his arguments to cover other diseases, including typhoid, dysentery, plague and yellow fever. In view of the utter ignorance at the time of the special vectors of these last two diseases one cannot judge him harshly on what was after all a mere addendum to his main thesis. He concluded his work with an admirable list of precautions to be taken in cases of contact with communicable diseases and a list of important public health measures to oppose their spread. Although Snow knew the total number of houses supplied by each of the

South London water Companies, he did not know the number supplied in the separate sub-districts. He thus could not calculate the mortality rates in the sub districts at the time of his investigations. However, shortly afterwards the General Board of Health instituted an official enquiry which supplied him with the detailed statistics of the population. In Richardson's new 'Journal of Public Health' Snow published a paper on "Cholera and the water supply in the South Districts of London in 1854". This paper continues his analysis of the mortality from Cholera, using the detailed figures from the recent report, and all his conclusions confirm his previous findings. It is in fact the statistical culmination of an already firmly established argument.

Snow's work obtained many admirers and many opponents. His book which cost him £200 to prepare and publish, sold only 56 copies and he received only £3. 12. Od. after the deduction of the publisher's commission. The Lancet reviewed the book with qualified approval, although admitting the impossibility of over-estimating the importance of Snow's theory of the spread of cholera in water. But the malaria theory still held the field. John Simon, one of the outstanding figures in Public Health in the nineteenth century, reported to the General Board of Health in 1856 that "faecalised drinking water and faecalised air equally may breed and convey the poison". Florence Nightingale attributed cholera to bad air and the emanations proceeding from animal excretions and decaying vegetable matter. In 1858 Simon refers to Snow's "peculiar doctrine" and passes it off as "of use in contributing to draw attention to the vast hygienic importance of a pure water supply". In 1874 Simon admits the merit of Snow's arguments and in 1890 he makes the handsome but belated admission that Snow's work "May probably still be counted the most important truth yet acquired by medical science for the prevention of epidemics of cholera".

In Snow's lifetime there was little public recognition. In 1856 his book was translated into German, but Snow's theory had to contend with the accepted theory of miasma and

the predisposing cause of the often appalling sanitary conditions. The foul state of the Thames provoked a letter to "The Times" from Professor Faraday comparing the river to a sewer, which Punch illustrated with a devastating cartoon. The country lacked enough men capable of thinking in straight lines on the problem, and although Snow in 1856 brought figures to show the lack of connection of malodorous trades with a high cholera death rate, Willim Budd accurately pointed the prevailing opinion. In 1856 Budd, who did for typhoid what Snow did for cholera, wrote that against the theory of contagion, "the great weight of medical opinion in this country is directly opposed. Not to speak of minor notabilities, the whole prestige of the Board of Health and the London Royal College of Physicians may be cited against it. To make increasing and implacable war against contagion and contagionists seemed with the former, indeed, to be, for some years, the chief purpose of its existence".

In 1855 Snow was called before the Select Committee of the Public Health and Nuisances Removal Bill and he spoke against the theory of malaria causing disease. Part of his evidence was seized upon by the Lancet and he was soundly castigated in a leading article. He was accused of being in league with those, who, in their trades, create offensive smells regardless of the effect on the general health. Scornfully the Lancet wrote, "The fact is, that the well whence Dr. Snow draws all sanitary truth is the main sewer. His specus, or den, is a drain. In riding his hobby very hard, he has fallen down through a gully hole and has never since been able to get out again."

Snow however viewed the rejection of his doctrine with prophetic calm. He looked beyond the disputes of his time.

"You and I" he would say, "May not live to see the day, and my name may be forgotten when it comes, but the time will arrive when great outbreaks of cholera will be things of the past; and it is the knowledge of the way in which the disease is propagated which will cause them to disappear".

To be continued in the October Journal.

Sports News

VIEWPOINT

Two or three times a week, throughout both summer and winter, the athletic ground at Chislehurst is invaded by a host of "sporting types", with the idea of taking some form of exercise. The rugger, soccer and hockey players in the winter find the pitches in perfect condition, while in the summer, the cricket pitch is always beautifully prepared, and the tennis courts approach Wimbledon standards. These facts are taken for granted by the average student. But one can imagine the shock there would be if, for instance, the hockey pitches had not been rolled, or the tennis courts had not been watered during the drought this summer. Yet similar conditions are often seen on grounds all over London, including those grounds of other hospitals.

Few students realise how lucky we are to have such a capable groundsman and wife as Laurie and Mrs. White to look after Chislehurst for us. They both put a phenomenal amount of care and effort into what must be at times a rather tedious job, and, thanks to them, our sports ground is one of the best known grounds in London. It is to be hoped that they continue to be in charge of the athletic ground for many years to come.



SAILING CLUB REGATTA

The regatta was held once again at Burnham-on-Crouch on June 10th-12th and we were able to make use of the facilities of the United Hospitals Sailing Club. As some members had arrived on the Tuesday evening, an early start was possible the following morning and several boats were taken out for an hour's sail before the cooks were put ashore to prepare lunch.

As several people had arrived by this time it was hoped to organise a race for the afternoon. However, many of the helmsmen were unfamiliar with Sharpies and by the time they had overcome their difficulties it had been decided to abandon the race until the following day.

The breeze was light on Thursday and two races were arranged for the Commodore's Trophy. In the first race Bill Fischer quickly took the lead and held it to the end. Tony Geach had bad luck when his mainsail collapsed and he had to retire. Ken Walker was second and Mr. Alment had a close race for third place. The afternoon race was again

won by Bill Fischer with David Welch second and Mrs. Roles third.

The Sailing Club Annual Dinner was held at the Royal Burnham Yacht Club in the evening; we were disappointed that no officers of the club were present.

On Friday the members present sailed up river to Farnbridge where a picnic lunch was taken at the "Ferry Boat Inn".

We would all like to thank the ladies for their excellent catering and Colin Birt for organising the regatta.

Fewer people were present at the regatta than in recent years despite wide advertisement of the event. The fact that the three regatta days have now to be counted as official holiday should not deter keen yachtsmen, and many men have had their first experience of sailing at these fixtures and have then gone on to become quite expert. For the inexperienced the firefly on the Welsh Harp offers an ideal opportunity of learning how to handle a racing dinghy, which, while a thoroughbred, can be quite docile. The regatta is open to staff and students alike and it is hoped that next year more people will come and spend a few days messing about in boats.

D. Welch.



CRICKET

1st XI v. Past XI, at Chislehurst, on July 5th.
—Match drawn.

This was a very enjoyable game, which took place in glorious sunshine. Bart's batted first and found runs difficult to get against Whitworth and Lucas. Wickets fell at regular intervals, and we were finally all out for 193, Juniper playing better than he has ever done before, carrying his bat. Stoodley and Savage both gave him very good support.

The Past batting looked somewhat rusty, and found runs even harder to get, against Garrod and Stoodley. Seven wickets were down for 82 runs, but the remaining batsmen took the score to 150. The last pair played out the last few overs with confidence, Mr. O'Connell, our president, playing with skill that belied his age, making, in particular, one memorable straight drive to the boundary. An exciting finish to a good match.

Once again, our thanks to Mr. O'Connell for helping to make the day such an enjoyable one.

Bart's: 193 (Juniper 82 not out, Stoodley 25, Savage 21).

Past: 150—9 (Stephen 49, Hunt 35 not out, Whitworth 27).

1st XI v. Incogniti, at Chislehurst, on July 11th.
—Won by 5 wickets.

This must be one of the most remarkable victories the club has ever had, with such high scores as have not been seen for many years. Even the Manchester Guardian commented on the feast of runs.

Incogniti batted first, and against bad bowling and some of the worst fielding ever seen at Chisle-

hurst, scored 293 for the loss of only four wickets. One of their opening bats scored 143, after being dropped twice before reaching 20. We were set to score the runs at the rate of 95 an hour.

Davies and Pagan gave us a good start, with 67 runs in 55 minutes. Then Merry continued the good work for a while. But with only 80 minutes to go, five wickets were down and 167 runs were still needed. Harvey and Stoodley came together and played themselves in. With 60 minutes to go, 140 runs were still needed, and the rate of scoring was always just behind the clock, and with only 10 minutes left, 30 runs were still needed. But amidst great excitement the winning run was scored with two balls left. Harvey batted magnificently, scoring the first century for Bart's for many years. Stoodley also hit extremely well.

Incognito: 293—4 declared (Marshall 143 Stoodley 3-72).

Bart's: 294—5 (Pagan 58, Harvey 111 not out. Stoodley 58 not out).

1st XI v. Hampstead, at Chislehurst, on July 12th
—Match drawn.

Bart's: 259—8 declared (Davies 88, Harvey 70, Robson 29).

Hampstead: 254—6 (Houghton 96).

1st XI v. Nomads, at Chislehurst, on July 18th.
Won by 4 wickets.

Faced with a comparatively weak team, we made rather heavy weather of the game. Nomads batted first, but after an opening stand of 66, were in great trouble against Davies and Harvey, and helped by two very good stumpings by Warr, were all out for 117.

It seemed at one stage that we would win without loss of wickets, as Davies and Pagan had an opening stand of 71. But Pagan was run out, and from then on, wickets fell rapidly. Warr, batting sensibly, finally saw us home.

Nomads 117 (Davies 5-33, Harvey 5-38).

Bart's 119—6 (Davies 39, Pagan 24).

1st XI v. Dartford, at Chislehurst, on July 19th.
Lost by 14 runs.

Dartford: 257—7 declared (Davies 4-78, Harvey 3-65).

Bart's: 243 (Davies 80, Warr 75, Robson 27).

Inter-firm 6-a-side Cricket Competition, on Saturday, July 25th, at Chislehurst.

This was the first time such an event had been held, and proved to be a great success. It was a warm sunny afternoon and the occasion was graced by the presence of one of our vice-presidents, Sir James Paterson Ross. Ten teams were entered, and after many exciting contests in the early rounds, the competition was won in almost complete darkness by the pre-clinical team, ably led by Peter Savage, who beat the finalists in the final.

Each innings lasted for 10 overs, every player bar wicket-keeper having to bowl. This led to some high scoring in a number of games. The main interest in the afternoon was contributed by a ladies' team, which acquitted itself very gallantly, and two Americans who had their first sight of the game. One often reads about players dropping their bat and dashing for cover point, but it is rarely seen.

About eighty people stayed on for the informal dance in the evening. This number exceeded our greatest hopes, and helped to round off the day in a wonderful manner.

I think it can be said that this event was greatly enjoyed by all, and will be well worth repeating in future years. Our thanks in particular to Mr. and Mrs. White, who helped to make it such a success.

Cricket Tour, August 2nd-7th.

Once again the cricket club descended on Rottingdean in Sussex, for its annual cricket tour. This year, we were blessed with glorious weather, and all the matches were played.

The social side of the tour was not forgotten. The Grand Prix track on the West Pier at Brighton now appears to be banned to Bart's students, and the inhabitants of Steyning Road won't forget in a hurry the nude figure with counterpane which held forth with full vocal power to some innocent anglers passing by.

The results are not very impressive on paper, but five of the six matches had a very close finish, and our two defeats could easily have gone the other way.

Everyone played their part, but one or two individual performances must be mentioned. The greatest success of the tour was Stoodley. He scored more runs than anyone else, his best innings being against Barcombe, where he scored 101 in 85 minutes. He also took 25 wickets. Rottingdean will long remember one over from him in which he clean bowled three of their best batsmen. Savage should also be mentioned for his fine work behind the stumps. The lively wickets that were played made a bowler of Stoodley's pace a very difficult proposition. Savage kept wicket better than ever before.

RESULTS:

Sunday, August 2nd v. Mariners.—Won by 16 runs.

Bart's 143 (Merry 39, Davies 30, Pagan 29).

Mariners 127 (Stoodley 5-71, Abell 3-22, Davies 2-12).

Monday, August 3rd v. St. Andrew's, Burgess Hill.
Won by 87 runs.

Bart's 252—6 declared (Harvey 53 not out, Merry 53, Stoodley 37, Abell 30).

St. Andrew's 165 (Davies 4-20, Harvey 2-21).

Tuesday, August 4th v. Rottingdean. Lost by 1 wicket.

Bart's: (143 Pagan 29, Davies 28, Bamford 25).
Rottingdean: 147—9 (Stoodley 6-53, Davies 2-30).

Wednesday, August 5th. v. Ditchling.—Won by 4 wickets.

Ditchling: 131-9 declared (Garrod 4-43, Stoodley 3-45).

Bart's 132-6 (Pagan 32, Fell 29, Abell 26 not out).

Thursday, August 6th. v. Barcombe.—Match Drawn.

Bart's 273—7 declared (Stoodley 101 not out, Pagan 45, Price 45, Fell 35).

Barcombe 203—9 (Stoodley 4-23).

Friday, August 7th v. Newhaven.—Lost by 3 wickets (12-a-side).

Bart's: 107 (Harvey 24).

Newhaven: 108—8 (Stoodley 5-50 Garrod 2-32).

UNITED HOSPITALS CUP FINAL

1st XI v. Guy's Hospital at Hornsey on September 9th, 10th and 11th

Lost by 8 wickets

This was a disappointing result for us, since we had entered this match with so much confidence. The main reason for the defeat was the fact that in both innings, most of our regular batting, of which so much was expected, failed against a no more than average attack.

We won the toss, and on a perfect batting wicket, batted first. We really lost the game in the first hour, when we lost 7 wickets for 41 runs. Batsmen appeared to find devious ways of giving away their wickets. It wasn't until Harvey and Stoodley came together that sanity was restored to the proceedings. They shared in a stand of 92, and this was followed by another stand between Harvey and Merry of 49 runs. All three batsmen played extremely well and sensibly in the circumstances.

Guys lost a wicket to the first ball of the innings, and were 2 wickets down with only 16 runs on the board. But our success stopped there, with the entry of Cook, the Cambridge Blue. He batted throughout the whole of the rest of the innings, and was the last man out, after amassing 177 runs. He

looked a class above anyone else, and never gave the vestige of a chance. Our bowling was good though not spectacular, and the fielding was satisfactory, though it could have been better. No chances were missed, and we did well to dismiss the remaining Guy's batsmen so cheaply.

When we batted again, we had a good opening stand of 48. But when Pagan was out, the middle order batsmen again inexplicably threw their wickets away. Six wickets were down for 99, and it was again left to Harvey and Stoodley to stop the rot. They added 33 runs, and later there was another excellent stand between Harvey and Merry, which put on 71 runs. Davies batted well, but the rest of the batting was most disappointing. Guys only had to score 92 to win, which they did with little trouble.

In spite of the result, much credit must go to John Harvey who lead the side exceedingly well, and batted magnificently. He held the batting together, by scoring 125 runs, and was only dismissed once.

Bart's: 1st Innings.

J. D. Davies, bowled Dyde	14
W. H. Pagan, ct. Dyde, bowled Leigh-Browne	0
C. P. Juniper, bowled Leigh-Browne	4
A. C. Warr, bowled Dyde	16
H. R. J. Walker, bowled Leigh-Browne	7
A. Whitworth, l.b.w. Leigh-Browne	0
J. A. Harvey, ct. Bury, bowled Cook	57
B. J. Stoodley, ct. and b. Leigh-Browne	48
J. D. Abell, bowled Leigh-Browne	0
R. T. G. Merry, bowled Cook	32
J. A. Garrod, not out	0
Extras	10
Total	188

Wickets:

1—14 2—14 3—21 4—37 5—41 6—41 7—41
8—133 9—182

2nd Innings.

J. D. Davies, bowled Gibson	53
W. H. Pagan, ct. Pagliero, b. Dyde	15
C. P. Juniper, bowled Dyde	0
A. C. Warr, ct. Juniper, bowled Dyde	12
H. R. J. Walker, bowled Dyde	0
A. Whitworth, ct. Sievers, b. Leigh-Browne	3
J. A. Harvey, not out	68
B. J. Stoodley, l.b.w. Cook	16
J. D. Abell, bowled Dyde	4
R. G. T. Merry, ct. Sievers, bowled Cook	33
J. A. Garrod, l.b.w. Cook	0
Extras	16
Total	220

Wickets:

1—48 2—48 3—76 4—75 5—85 6—99 7—132
8—149 9—220

Bowling:

J. A. Dyde 18—4—46—2
A. Leigh-Browne 15—6—39—6
I. Gibson 8—1—42—0
G. W. Cook 12.3—4—43—2
R. Tanner 2—0—8—0

Guys: 1st Innings

M. Pagliero, ct. Harvey, bowled Stoodley	0
R. Juniper, bowled Abell	42
I. Gibson, bowled Whitworth	7
G. W. Cook, bowled Whitworth	177
J. A. Dyde, bowled Harvey	19
T. Huins, bowled Stoodley	0
R. Myall, ct. Warr, bowled Whitworth	5
G. Bury, bowled Walker	15
J. Sievers, ct. and bowled Abell	3
R. Tanner, l.b.w. Whitworth	5
A. Leigh-Browne not out	40
Extras	4
Total	317

Wickets:

1—0 2—16 3—121 4—150 5—151 6—172 7—259
8—282 9—304

Bowling:

Stoodley 27—6—101—2
Garrod 2—1—5—0
Whitworth 21—1—79—4
Harvey 11—2—35—1
Abell 12—3—22—2
Walker 7—0—32—1

2nd Innings

M. Pagliero, l.b.w. Whitworth	6
R. Juniper, not out	39
I. Gibson, l.b.w. Abell	28
G. W. Cook, not out	4
Extras	17
Total for 2 wickets	94

Wickets:

1—27 2—72

Bowling:

Stoodley 3—0—18—0
Whitworth 4—0—28—1
Abell 4.4—0—22—1
Walker 2—0—6—0
Juniper 1—0—3—0

1st XI v. Old Dunstonians, at Beckenham, on August 13th. Won by 138 runs.

A very convincing win against not very strong opposition. This match was a personal triumph for Davies, who not only batted beautifully, but also bowled extremely well.

Thanks to him, we were able to declare at 194 for 7. Davies hit strongly to all parts of the field, being particularly severe on anything pitched at all short.

The opposition batted very badly and never looked like reaching the total. Davies and Harvey both bowled well.

Bat's: 194—7 declared (Davies 136).

Old Dunstonians: 56 (Davies 5-35, Harvey 4-20).

1st XI v. Wimbledon, at Wimbledon, on August 29th.—Match drawn.

A rather remarkable match before tea, but it fizzled out into a disappointing draw afterwards.

When we batted, we lost both opening batsmen for 10 runs. This brought together Juniper and Warr, who in the next 120 minutes, put on 200 runs. Both scored a century, and batted magnificently. It was a delight to watch such an exhibition of stroke play.

Wimbledon were left an equal amount of time to score the runs, but after losing 4 wickets for 90 runs in 70 minutes gave up the chase, and were content to play out the rest of time. Harvey bowled very well, taking 5 wickets in all.

Bat's: 211—4 wickets declared (Juniper 102, Warr 101).

Wimbledon: 179—6 wickets (Harvey 5-49).

**MEN'S TENNIS, 1959**

The benign summer enabled us to play our matches under the most pleasant conditions, and only a couple of games had to be cancelled through bad weather.

The first team won eight rubbers and lost five. This record would undoubtedly have been bettered had the full team been available on more occasions. Unfortunately, Cambridge finals cut across the season and we will have to foster adequate reserve strength. Fortunately there are signs, not only of keenness, but of ability amongst the Charterhouse contingent. The standard of play was at times very good, and there was an excellent victory over Sandhurst.

At no time did we find courts to equal the really excellent ones at Chislehurst, and we must thank Lawrie White for keeping them in such condition.

The following played regularly for the 1st VI. A. J. Gordon (Capt.), A. T. Seaton (Sec.), Dr. D. Smythe, Dr. S. Contractor, J. H. Pennington, C. A. McNeill, M. Jennings and D. Prosser; and for the 2nd team, A. Stewart, M. Perry, D. Lathan, P. Kingsley, E. Shinebourne and A. Frank.

LADIES' TENNIS**1st VI v. London Hospital, on July 8th. Won—8—1.**

1st couple: J. Arnold, J. Hartley.

2nd couple: P. Kielty, I. Tomkins.

3rd couple: A. Varten, J. Angell-James.

This was a very social occasion as it was far too hot for serious tennis. Rallies were few and far between, most points being won, or lost, easily and one long set only was played against each couple. This meant that one had to settle into a match very rapidly and establish a good lead early.

1st VI v. Middlesex Hospital, on July 11th. Lost —3—6.

1st couple: J. Arnold, P. Kielty.

2nd couple: E. Knight, I. Tomkins.

3rd couple: A. Varten, V. Jones.

A greatly changed team from the one forwarded for the cup match earlier in the season. Played in an almost gale force wind for the first half, the game was one of knowing where to aim the ball for it to curve back into court. The first pair unfortunately decided to change from their usual court positions and adopt a new plan, but hastily changed back again to their former method after losing the first match. Play was rather erratic on both sides, but the second pair did well to win two matches. The third couple only settled in to the game by the second match but still lost easily to all three couples from the Middlesex.

1st VI v. K.G.H. on July 18th Won—5—4.

1st couple: J. Arnold, J. Tuft.

2nd couple: I. Tomkins, A. Varten.

3rd couple: S. Cotton, A. Sinclair.

The last match of the season, and a most exhausting one. This time, the first couple, although playing some good shots, spent too long, settling into the games and threw away many opportunities, especially in the first match where they lost 6-4, 3-6, 3-6. The third couple fought hard, beating thirds in three sets with a score 7-5, 3-6, 6-2. But the match was won mainly by the perseverance of the second couple, who played steadily throughout to beat all three opposing couples—a very creditable effort.

In retrospect, this has been a most successful season. More matches than in previous years were played and none were cancelled owing to weather conditions. For the first time, we won the U.H. Cup—and also won 11 out of 13 1st VI matches. The clinicals team during July won two and lost two matches—and the 2nd VI lost the two matches played.

(continued from p. 236)

much of our route during the past twelve days. There was not a cloud in the sky and the view was so clear that Mont Blanc and the Chamonix Aiguilles, at a distance of 55 miles as the crow flies, seemed only a long stone's throw. A few hours later we were in Lugano. Sitting on the terrace in the warm summer evening, it seemed difficult to believe that the skis still strapped on the roof of the car had been used the same morning.

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"The Anatomy Lesson, by Dr. Sebastian Egbertsz." 1619, Thomas de Keyser—Rijksmuseum, Amsterdam.

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